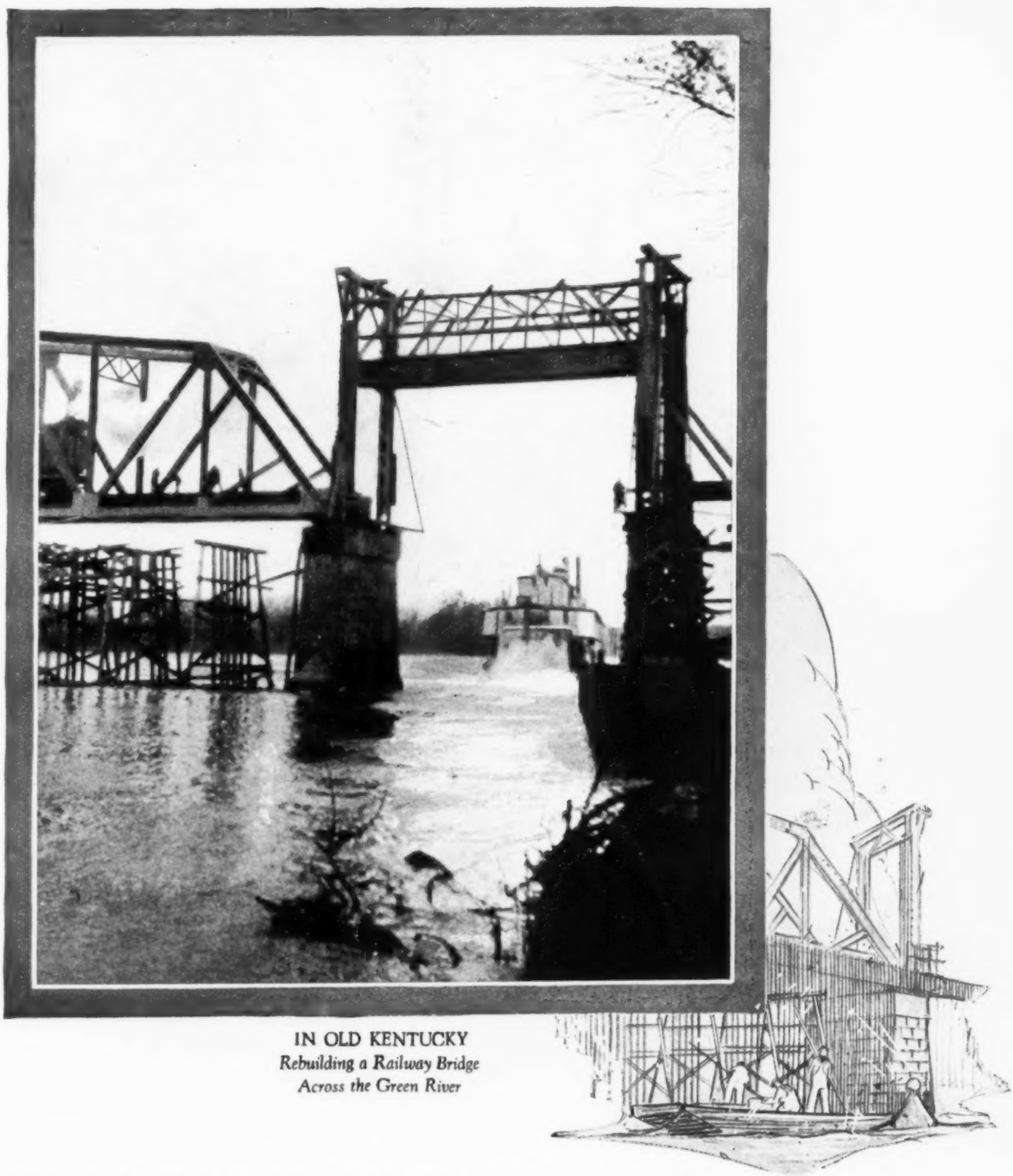
March
1927

Successful Construction Methods

McGraw-Hill Publishing Company, Inc., New York N. Y.



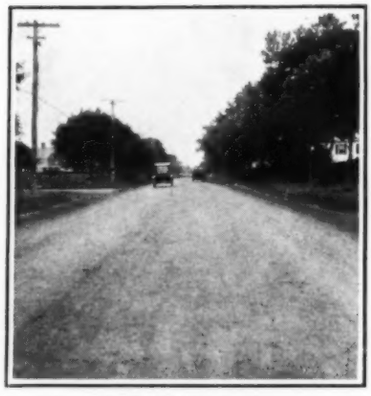
IN OLD KENTUCKY
Rebuilding a Railway Bridge
Across the Green River

A MONTHLY PICTORIAL OF FIELD PRACTICE AND EQUIPMENT

General Construction · Highways · Buildings · Engineering · Industrial

Sheet Asphalt

Asphalt Penetration Macadam



Asphalt Surface-Treatment

Choosing the right type— not a simple task

One of these pavements is of the hot-mix Sheet Asphalt type. Another is Penetration Asphalt Macadam. The third is a plain Surface-treatment. The cost of each type differs considerably from the costs of the other two. On the other hand, the degree of service possible from each, and the wear that each is capable of standing, varies.

It often is a real problem to know your traffic, present and expected, and to choose the type of improvement which will *most economically* answer the need.

It helps considerably at such a time to call in a Texaco engineer, whose particular business it is to know these things, and to discuss the problem with him.

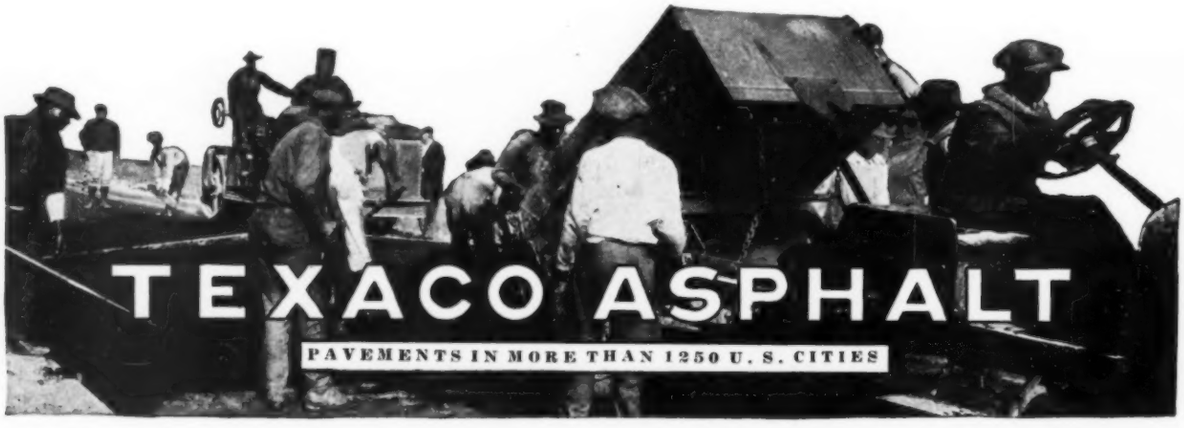
MOTION PICTURES

The Texas Company has two asphalt paving films which are being loaned without charge.

One of the films is devoted to the construction of a Sheet Asphalt pavement, from laying of the foundation to completion of the wearing surface, including the operation of the asphalt plant.

The other relates to the building of an Asphalt Penetration Macadam thoroughfare, from the delivery of materials, to the opening of the finished pavement to traffic.

Either or both these films will be loaned to responsible individuals or organizations interested in paving.



New York
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Richmond
Boston
Chicago

The Texas Company
Asphalt Sales Dept.
17 Battery Pl., New York City

Cleveland
Kansas City
Jacksonville
Dallas
Houston

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Successful

Construction

Methods

Hitting the High Spots

EVERYBODY seems to be talking about railroads just now. Wall Street is getting all heated up about them; the Railroad Show is on this month in Chicago, and they are beginning to rival the weather as a topic of conversation. So just to prove that we are very much up to date, we have put a few railroads into this issue of *Successful Construction Methods*. Railroads are not exactly the dominating theme of this issue, but there are just enough of them to make it necessary for us to warn you to drive carefully as you go through the magazine and keep your eyes open for grade crossings.

Our first railroad will be encountered on pages 4 and 5 where you can examine some of the processes of railway construction in Darkest Africa. Out there the engineers have servants to hold umbrellas over their heads while they work and the workmen wield their picks and shovels to the tunes played by a band. Whether or not these pleasant institutions would work on a construction job here in the United States, is for you to say. We refuse to venture an opinion.

THEN we have a railway construction job of our own through the woods of northern Idaho where the Northern Pacific is extending its activities. It is on pages 6–8. Incidentally we are lucky to have this article. It was obtained for us by our traveling field representative who spends all of his time flitting from job to job. He travels in his car, carries a camera, and is on the road all the time. Just at present he is in California and is starting East through the southern part of the country. If he should drop in on you, give him the glad hand and show him the whole works. And don't forget to make him take your picture. That will enable us to stand you up on top of the chuting tower or some other impossible place when we print an article about your work.

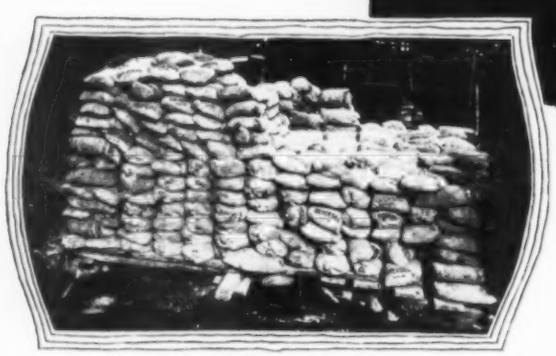
BUT we started to tell you why we are lucky to have these photographs of railway work in Idaho. It seems that this field representative of ours, who is an enthusiastic young man, attempted to take a photograph of a steam shovel from a precarious position high up on the banks of the Orofino Canyon. Something slipped at the critical monent and with his camera preceding him he shot more or less gracefully down the steep slope to the creek below. He is still alive and the pictures are here despite their ducking.

Let's resume our railroading. Our cover, as you probably have noticed, shows a railway bridge job in Kentucky. You will find more about it on page 3. Then we have a very interesting story on pages 30 and 31 describing the building of the Chesapeake and Ohio's new shops at Huntington, West Va. When you come to a big picture of an old brick building reposing peacefully inside a new steel structure, stop and look it over. That's it.

THERE are plenty of other articles for those of you who don't like railroads. We have some pictures of the construction of a University in China on pages 22 and 23 which may or may not be still standing; an Oregon road maintenance article on pages 14–17; some winter work in Wisconsin (20 below zero stuff) on pages 20 and 21; a hurry-up building job in New York on pages 24–25; and several others. And as we have said before, if you don't find what you want, shout for it.

Furthermore, just because you may not find what you want in the part of the magazine that we get up, don't be too sure it isn't there. It may be among the advertising pages. Our advertisers seem to have decided that a pictorial magazine is a good place for pictures, and they are putting in pages that look a little better to us than some of our own.

Spring is coming.



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Successful
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A Monthly Pictorial of Field Practice and Equipment
GENERAL CONSTRUCTION—HIGHWAYS—BUILDINGS
ENGINEERING—INDUSTRIAL

WILLIAM JABINE
Editor

VOLUME 9 NEW YORK, MARCH, 1927 NUMBER 3

Cover Picture Wins First Prize

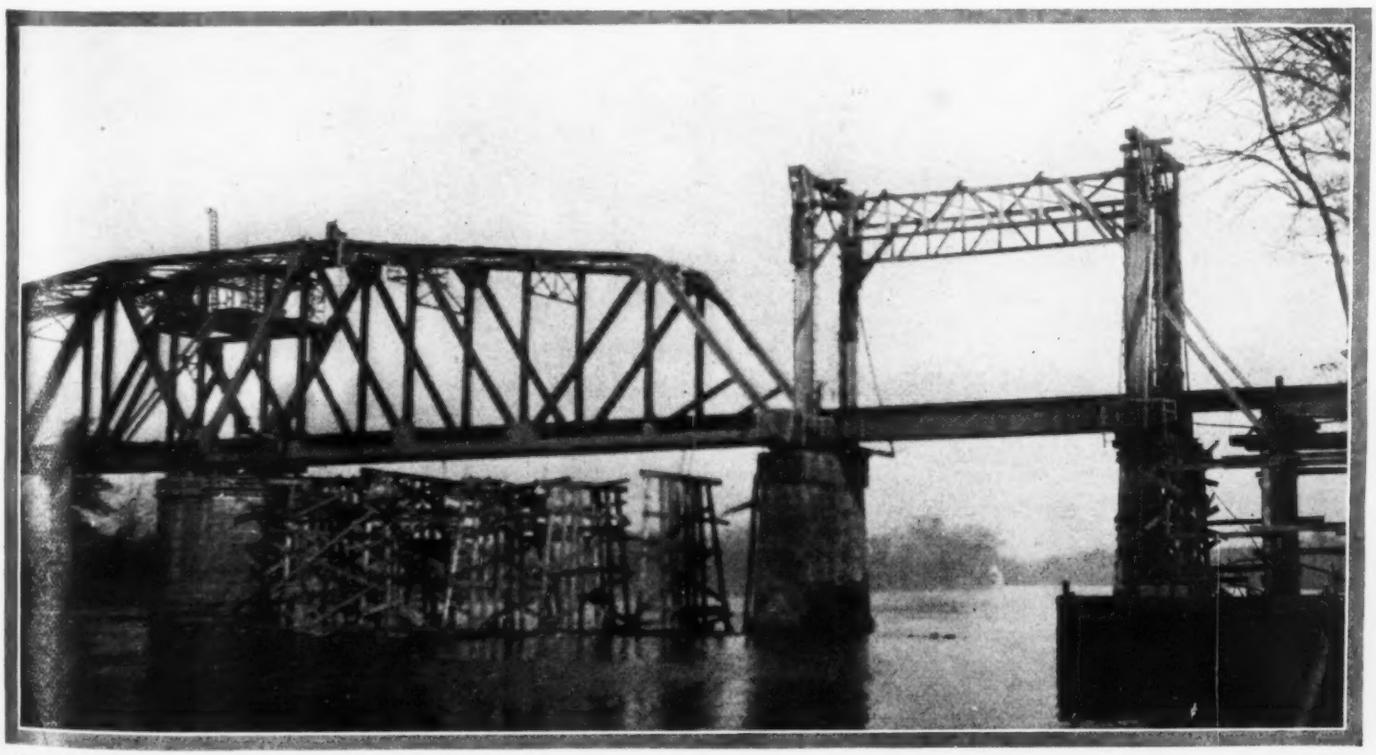
IN constructing a new bridge for the Louisville, Henderson & St. Louis Railroad across the Green River at Spottsville, Ky., some method had to be provided for keeping the river open to navigation while the new bridge was being built. The photograph on the cover of this issue of *Successful Construction Methods* and that on the bottom of this page show how this was done. A temporary lift span 60 ft. in length with a lift of 30 ft. was built at one end of the bridge where one of the permanent fixed spans was constructed after the draw had been finished and put in operation. The new bridge consisted of a draw 260 ft. in length and two fixed spans, each 154 ft. long.

A place on the front cover of this issue of *Successful Construction Methods* and the first prize of $25.00 in the March photographic contest goes to H. N. Wood, assistant engineer of the Louisville, Henderson & St. Louis Railroad, which is a picture of bridge construction work on the Green River in old Kentucky. The pictures which won the second and third prizes will be found on page 13.

The temporary lift span was built of heavy timbers placed at the corners as shown in the photographs. The span is equipped with a 6-ton counterweight at each corner consisting of a steel basket filled with angle bars. These counterweights were almost sufficient to raise the span, and the additional power was furnished by a hand crab at each end. Each crab was operated by two men. This temporary span was in position for 60 days and, as shown on the cover photograph, permitted steamers of considerable size to continue navigation.

The Gould Contracting Company of Nashville, Tenn., had the contract for the erection of the bridge, the steel for the permanent structure being furnished by the Louisville Bridge and Iron Company. H. N. Wood, assistant engineer, was in charge for the railroad. J. M. Johnson of Louisville acted as consulting engineer during the construction of the new bridge.

Temporary lift span lowered to track level



Building a Railroad

A new railroad line is being built in Western Africa between Port Harcourt and Kaduna in Nigeria. This line will be about 600 miles in length and will make it possible to export coal from the Udi coal fields. As may be seen from the photographs, a mixture of native labor and modern machinery is being used in the construction of this line. The center photograph shows a band which plays while the natives work and is said to speed up the job. The lower photograph shows the building of concrete piers for a bridge on the new railroad. The picture at the top shows that modern tool, the umbrella, protecting the hard-working engineer.

© Keystone.

in Western Africa

Some additional scenes along the Port Harcourt-Kaduna railroad appear on this page. In the center the weekly line-up at the pay shack is shown. The large photograph at the bottom of the page gives a good idea of the large number of men employed on the job. They seem to be swarming in from all directions. In all about 750 men are at work. A typical section of the finished grade ready for the rails may be seen in the small oval picture. In spite of primitive hand labor modern tools also are employed on various stages of the work, as may be seen in the upper photograph where air tools are in operation.

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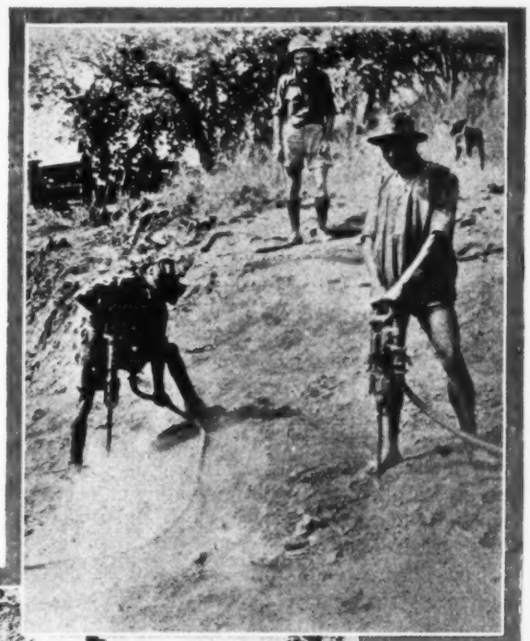


Railway Work in Northern Idaho

Varied Methods, Old and New, Used in Building Line— Motorized Dump Car Tried Out

THE almost complete inaccessibility of the country through which a railroad in northern Idaho is being built has forced a return to primitive grading methods on the line. The new railroad connects with the Northern Pacific branch at Orofino on the Clearwater River. From there it ascends 41 miles to Headquarters, where it connects with the logging railroads of the Clearwater Timber Company.

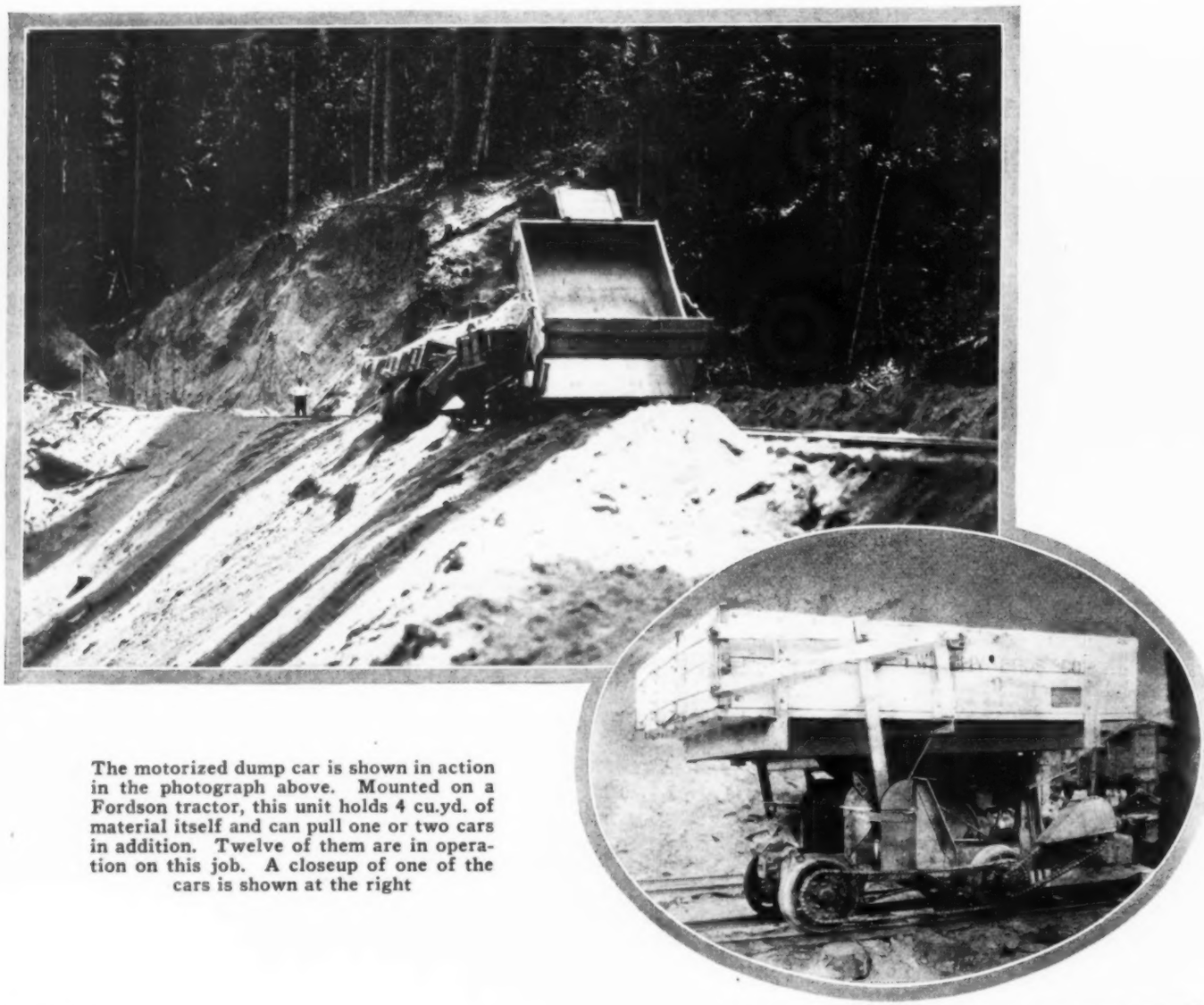
From Orofino to Pierce, a distance of 26 miles, the line follows Orofino Creek, a tortuous stream confined between steep canyon walls. Beyond Pierce it continues to rise for 8.5 miles to the summit and then descends 6.5 miles to Headquarters, the logging railroad center.

The final job of putting down the rails is being handled by this Clyde track layer

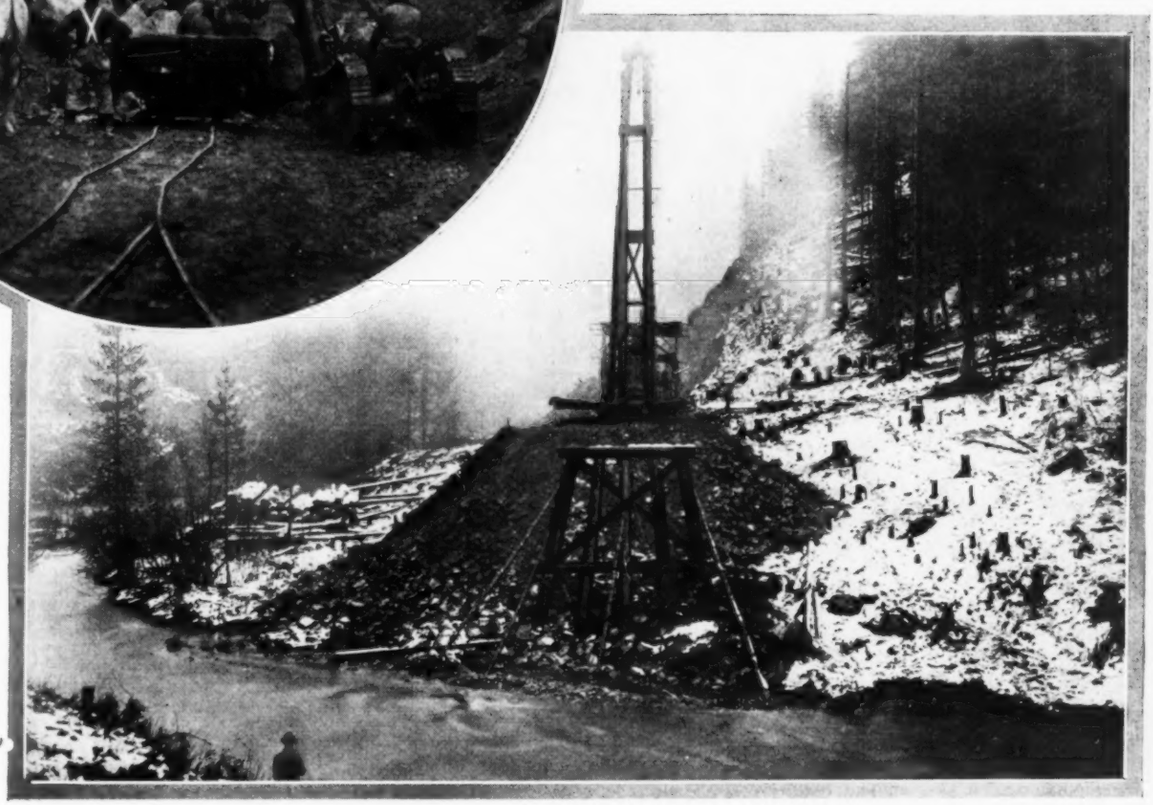
Tote roads had to be constructed by the contractors in order to bring their equipment over the steep, forested slopes. Below Pierce, most of the work is handled by station gangs, using trap tunnels in the cuts wherever possible. Above Pierce, steam and gas-air shovels on crawler treads are in more common use. Shovels and trucks operating between Orofino and Pierce were in nearly all cases brought up the bed of Orofino Creek.

The line includes a total of 44 bridges. Most of the bents are on foundations of blocking placed in excavated footings. It has been found possible to drive piles in many places, however.

The original location of the line called for 50 crossings



The motorized dump car is shown in action in the photograph above. Mounted on a Fordson tractor, this unit holds 4 cu.yd. of material itself and can pull one or two cars in addition. Twelve of them are in operation on this job. A closeup of one of the cars is shown at the right



A good idea of the character of the work is furnished by the three photographs on this page. Trap tunnels such as that shown in the upper photograph are used wherever possible in the cuts. The picture at the left shows a tractor and gin pole co-operating in the job of loading broken rock. Below is a pile driver getting to work on one of the frequent bridges that will take the new railroad across Orofino Creek.

of Orofino Creek alone. By making 7 channel changes, 14 of these bridges were eliminated. Five of the new channels were opened by blasting. One channel change of ¾ mile was made by a gas-air Erie shovel with a drag line attachment. The channel shown in one of the photographs was formed by the blasting of about 20,000 cu.yd. of rock.

In making a new channel through silt and gravel, good results in moving the material were obtained by shooting holes about 6 ft. deep in rows about 10 ft. apart. From 2 to 3 thousand cu.yd. were lifted at one time. This method was suggested by H. M. Tremaine, assistant chief engineer, Northern Pacific Railway Co., in charge of the work.

The rock encountered in the cuts is split into large segments separated by clay seams. These chunks are not broken up by the blasting but require bulldozing. One of the photographs shows a piece of one of these rocks that has been broken up by bulldozing being loaded on a dump car by a tractor hoist and mobile gin pole.

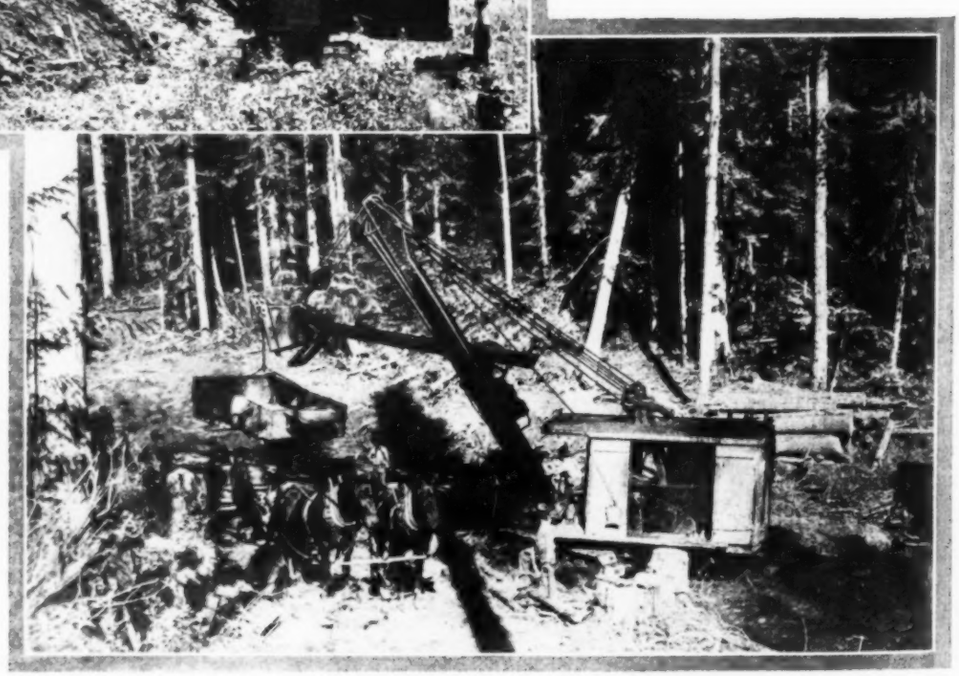
About 80 per cent of the material being excavated is rock of some description. The formation from Orofino to a point 20 miles up Orofino Creek is basalt. It changes there to granite. Much of the granite is disintegrated and frequently causes trouble by failing to hold its slope in the cuts. The heavy fall rains caused a number of slides in the earth cuts and a few in the rock cuts, as well.

The motorized dump car is a novel piece of contruction equipment which passed its first trial on this job successfully. An end dump body is mounted above a Fordson tractor equipped with small flanged wheels. The car holds 4 cu.yd. itself and easily pulls a 4 cu.yd. car in addition, thus allowing material to be dumped 2 ways from the end of a trestle. M. S. Boss, superintendent for Twohy Bros. Co., the general contractors, was originator of the idea embodied in the motorized dump car. He has 12 of them on the job. They are manufactured by the Pacific Car and Foundry Co.

The work is being done under the general supervision of H. E. Stevens, chief engineer, Northern Pacific Railway Co., St. Paul, and under the personal direction of Mr. Tremaine, resident engineer. Twohy Bros. Co. have let sub-contracts for grading to Rumsey and Jordan, McVicker and Murphy, Bennett and Twohy, Parker and Knowles, and Yeatman and Jackson. The Pacific Utilities Co. of Seattle have the contract for track and bridges. As mentioned before, Mr. Boss is general superintendent for Twohy Bros. Co.

When completed, the railroad will be operated by the Camas Prairie Railroad Co., which is owned jointly by the Northern Pacific and the Union Pacific. Its first use will be to transport logs from the holdings of the Clearwater Timber Co. to the new mill at Lewiston, Idaho.

At left—Changing the channel of Orofino Creek. This gas-air Erie operating as a crane with dragline attachment handled this work on a three-mile section



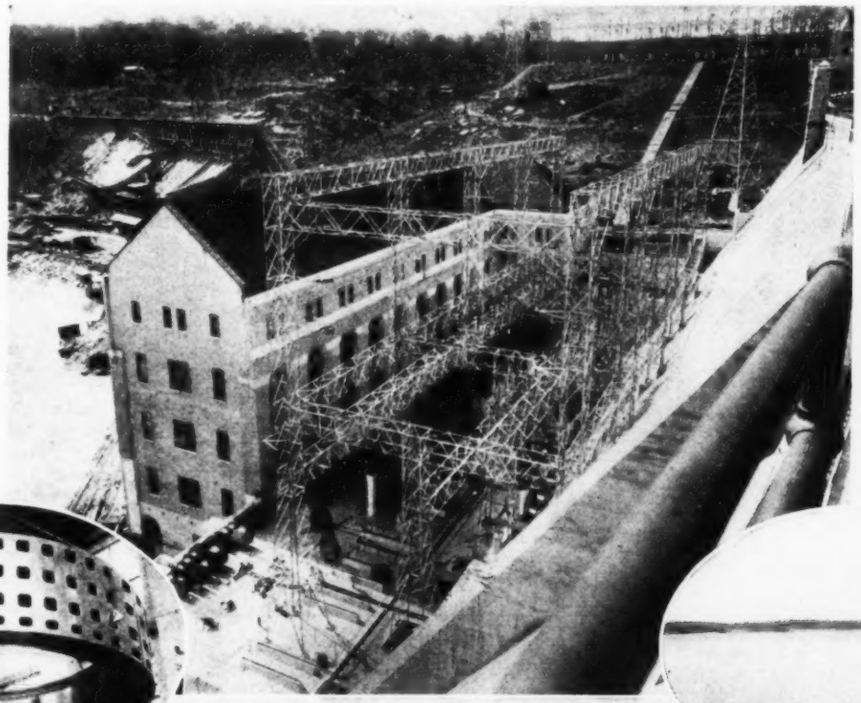
At right—Much of the work was done through heavily wooded country such as that shown in the photograph. In many cases it was an extremely difficult job to get big units such as power shovels through the woods

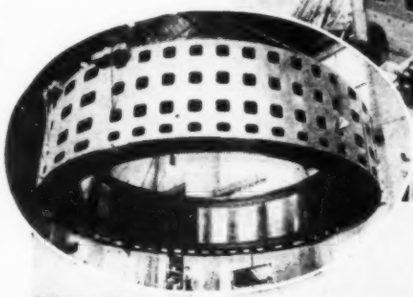
BLUE BOOK

One of the South's Great Power Projects—the Martin Dam

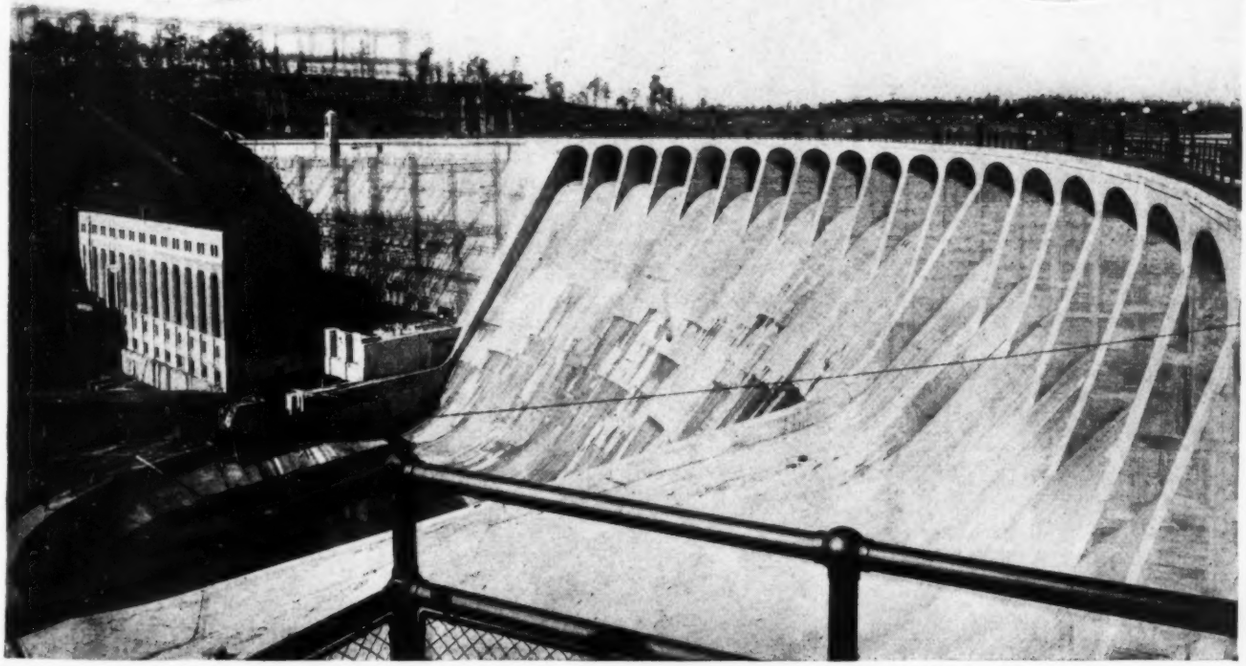
One of the great power developments in the South is at Cherokee Bluffs, Alabama, where the Dixie Construction Company has been building for the Alabama Power Company the Martin Dam and Power House, a storage power project on the Tallapoosa River. The lake formed by the Martin Dam has an area of 39,400 acres and a shore line of 750 miles, thus making it one of the largest artificial lakes in the world. The maximum height of the dam from the lowest point of the foundations to the crest is 151.5 ft. Its width at the base is 110 ft.

The power house nearing completion is shown in the photograph at the right which was taken from the top of the dam. The small picture just below shows the installation of some of the heavy equipment inside the power house

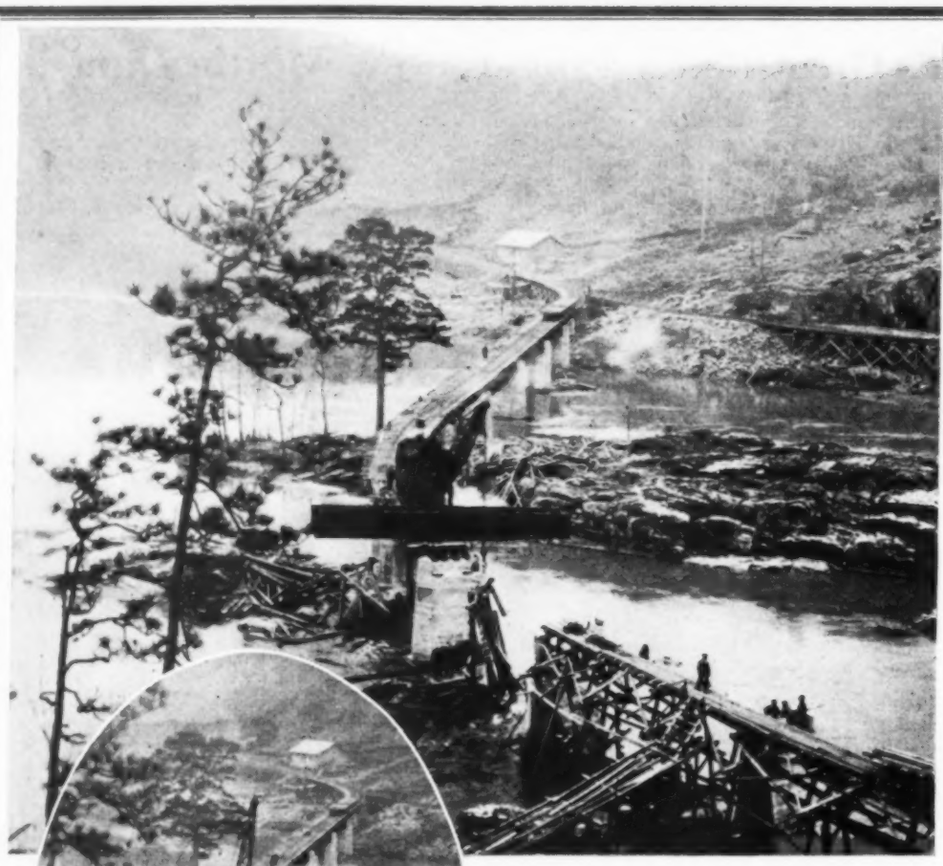




The large photograph at the bottom of the page shows the downstream face with the pool at the foot of the spillway. The small picture gives a glimpse of the lake above the dam which is 20 miles long and has an average width of 3 miles



BLUE BOOK



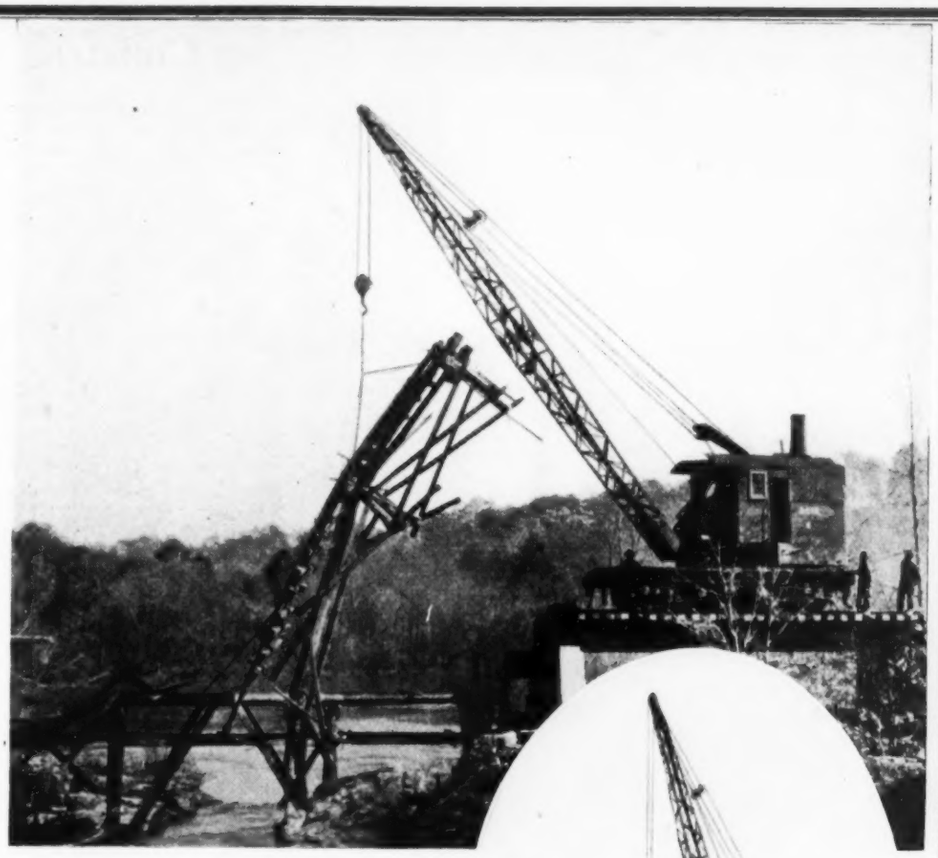
Placing on Railway Martin

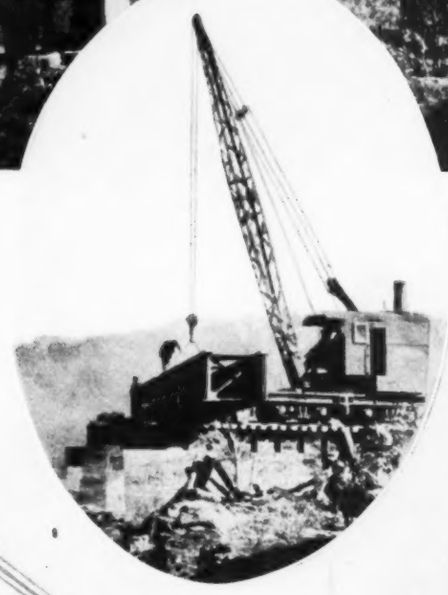
One of the jobs incidental to the construction of the Martin Dam was the building of a standard-gage railway bridge 630 ft. in length. The photographs on this and the opposite pages show a 20-ton industrial crane mounted on a railroad flat car. In the operation shown on this page, outhaul ropes were used to facilitate the placing of the 50-ft. girders. The upper photograph shows the crane removing the last pieces of the temporary timber construction. The middle picture shows it picking up the heavy girder, and in the lower photograph the girder is being lowered into its permanent position on the concrete piers

BLUE BOOK

Girders Bridge at Dam

In the operation shown on this page the same crane handled 50-ft. girders without the use of outhaul ropes. The upper photograph shows the crane removing the temporary bridge, the middle picture shows it ready to swing the heavy girder into position and at the bottom of the page it is shown gradually lowering the girder into place. The bridge shown in these photographs connects the east and west shore division of the Yard and Plant railway used during the construction of the Martin Dam. All of the photographs in this series were sent to *Successful Construction Methods* by L. G. Warren, Assistant Superintendent for the Dixie Construction Company



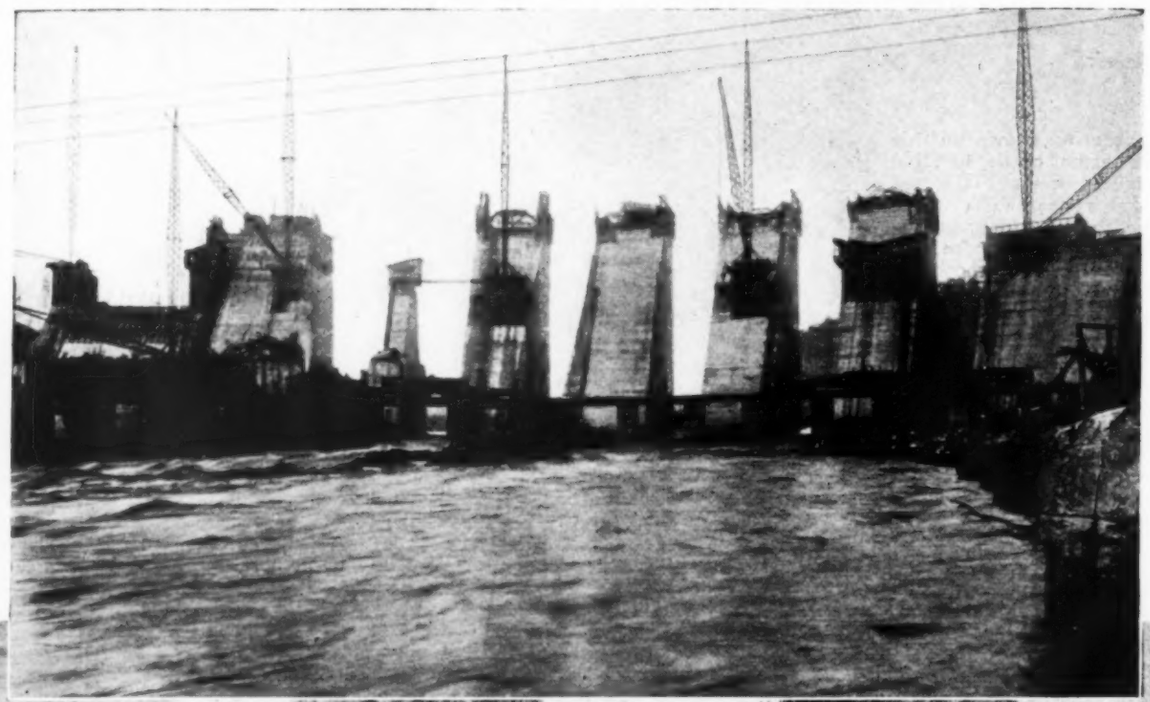


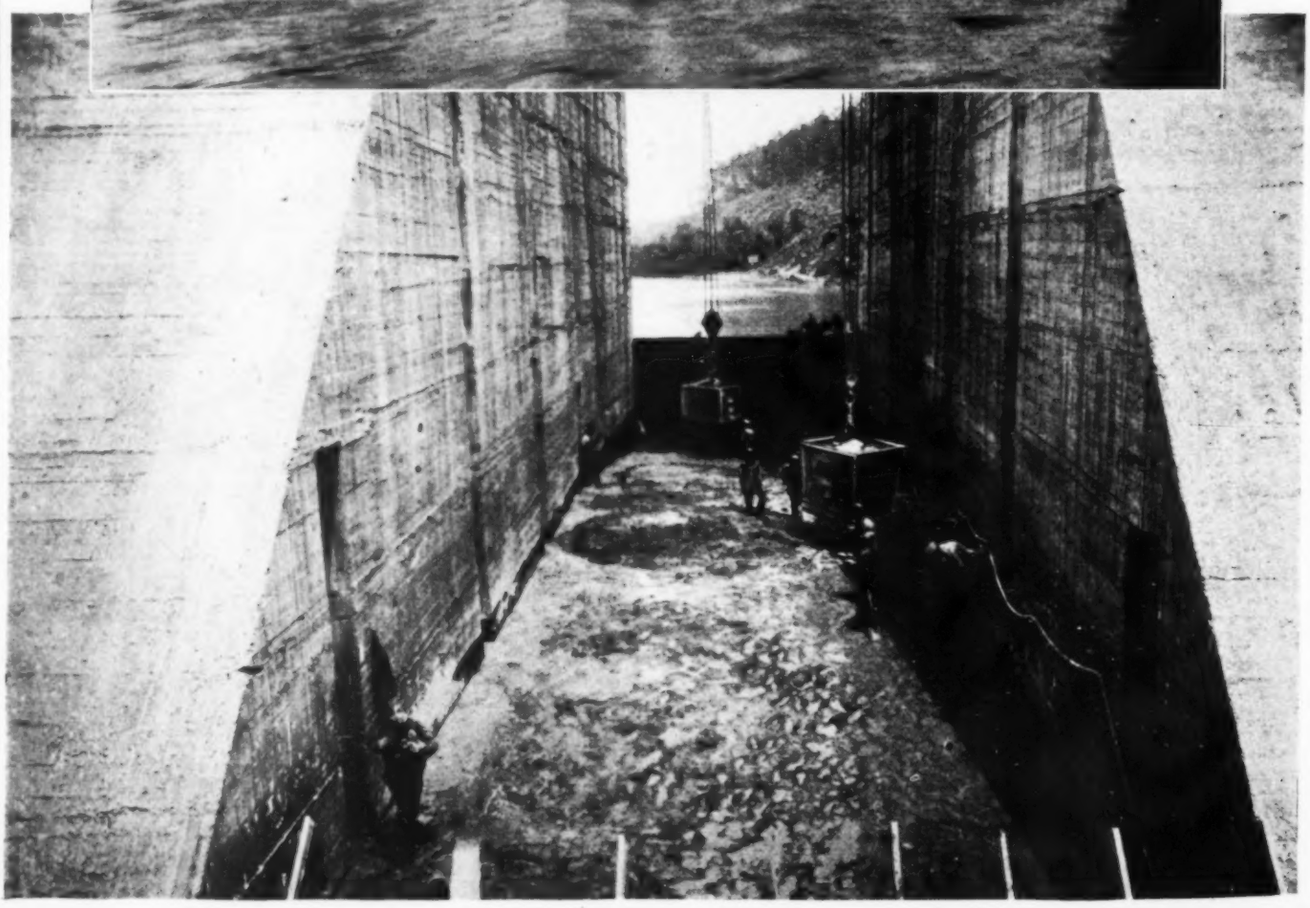
BLUE BOOK

Martin Dam During Construction

The upper photograph shows the arrangement of derricks on the dam while it was in the early stages of construction. This photograph was taken in 1925

The lower photograph shows the pouring of the first concrete in closing the stream control openings of the dam. This work began in May of last year

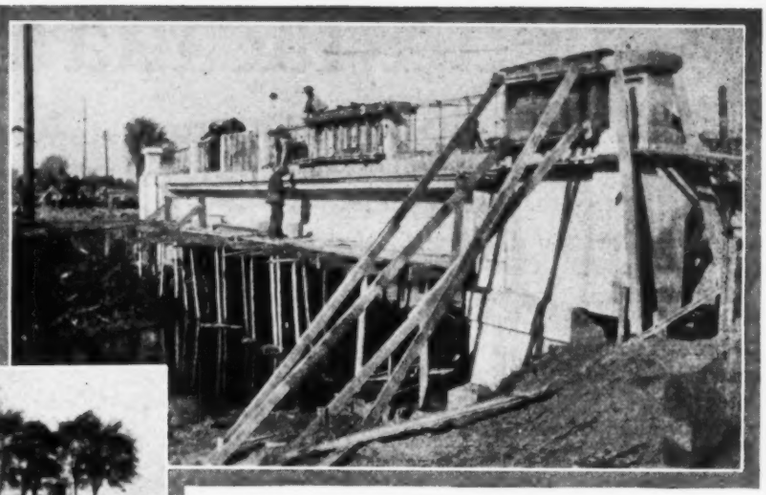


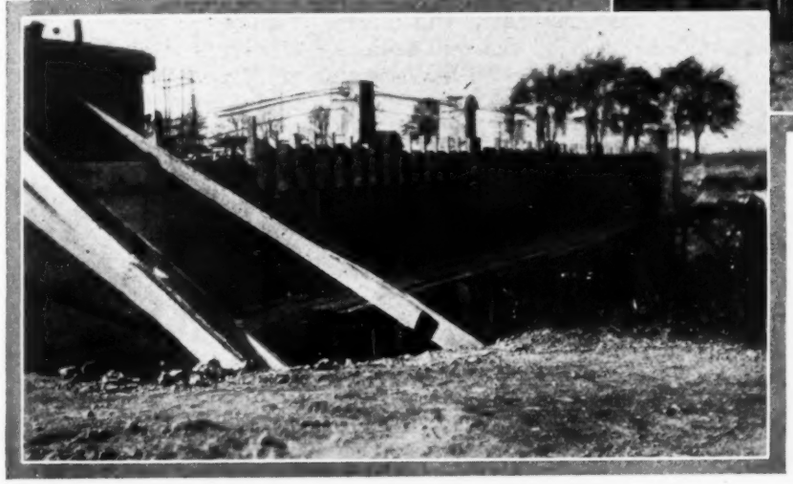


Michigan Bridge Wins

Second Prize of $15.00 in March Photographic Contest

The winner of the second prize in the March Photographic Contest is R. O. Van Orden of Owosso, Michigan, who sent in the accompanying photographs of the concrete highway bridge built near Ovid, Mich., by Price Brothers, Lansing, Mich. The lower photograph shows the forms in place for a Fascia girder, and the upper picture shows the completed girder while it was being rubbed. The forms for this job were made of a combination of wood and sheet metal, the sheet metal being used for the concave surface. When the forms had been removed, it was found that the sheet metal portions gave a much smoother surface than the wooden portions. Incidentally, the cost was considerably less than if the forms were made entirely of wood.





Diminutive Bridge Captures Third Money

The third prize of $10.00 in the March Photographic Contest was won by Albert C. Cook of Leander, Texas, who entered a number of photographs of a small concrete bridge which he built during his leisure moments. This bridge is built of reinforced concrete, is 34 in. wide and 40 in. long. It contains 50 lb. of reinforcing. The roadway is 20 in. wide. The hand rails which are made of concrete are reinforced with small wire.

Third Prize March Contest

This Picture Wins $10.00

The April Contest Is Now Under Way

ENTRIES FOR THE APRIL photographic contest are now in order. The awarding of the three prizes, $25 for the photograph most suited to the needs of *Successful Construction Methods*, $15 for the second best and $10 for the third best has stimulated great interest among the amateur camera men on the various construction jobs throughout the country. Send along some photographs and see if you can't be among the lucky ones for April.

The conditions remain as before. The photographs must be taken by a man actually employed on the job and should be sent to *Successful Construction Methods*, Tenth Avenue at Thirty-sixth Street, New York City, by Thursday, March 10, and plainly marked Photographic Contest. Photographs received after that date will be entered in the May contest. *Successful Construction Methods* will pay for all non-prize-winning photographs which it uses.

Oiled Macadam in Oregon

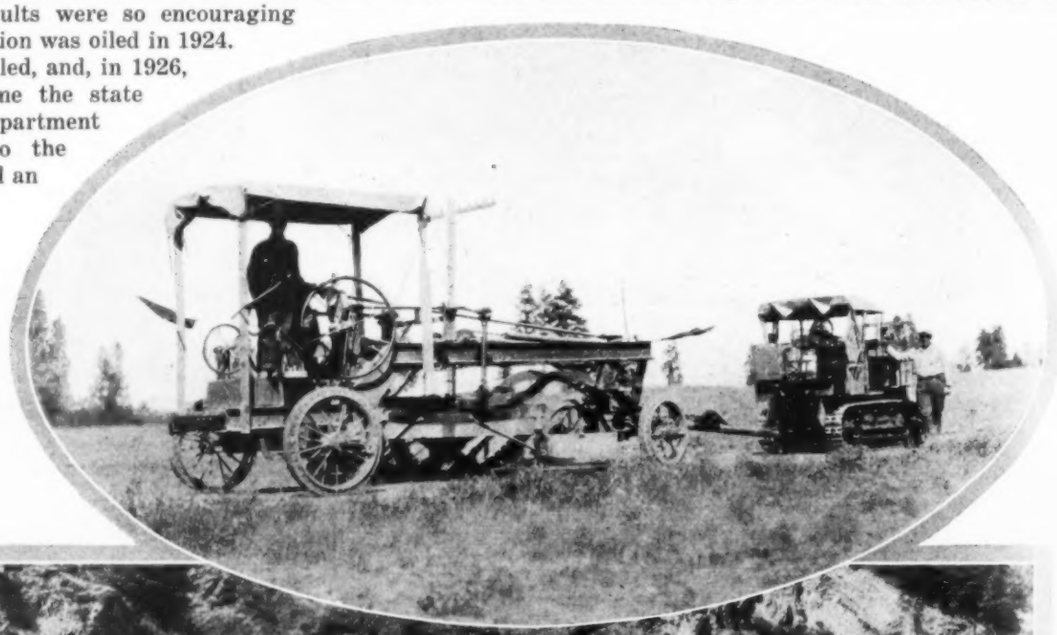
Maintenance Department Uses Thin Mat to Preserve the Surface of State Roads

OREGON has had good macadam roads for years. Having been successful in developing a clay bound macadam that did not ravel or corrugate, the state highway commission faced the problem of finding a means to preserve this material. The heavy traffic during the dry season caused the binder to loosen and the surface to disintegrate and wear away at the rate of about an inch a year. Resurfacing was necessary every 4 or 5 years.

In 1923, an experiment in oiling the surface was tried in Division 5, with headquarters at La Grande. An insufficient quantity of too light oil was used in this first trial, but, nevertheless, the results were so encouraging that more road in the division was oiled in 1924. In 1925, 98.5 miles were oiled, and, in 1926, 191.4 miles. By this time the state highway maintenance department had become converted to the practicability of oiling, and an even greater mileage was being treated in other divisions.

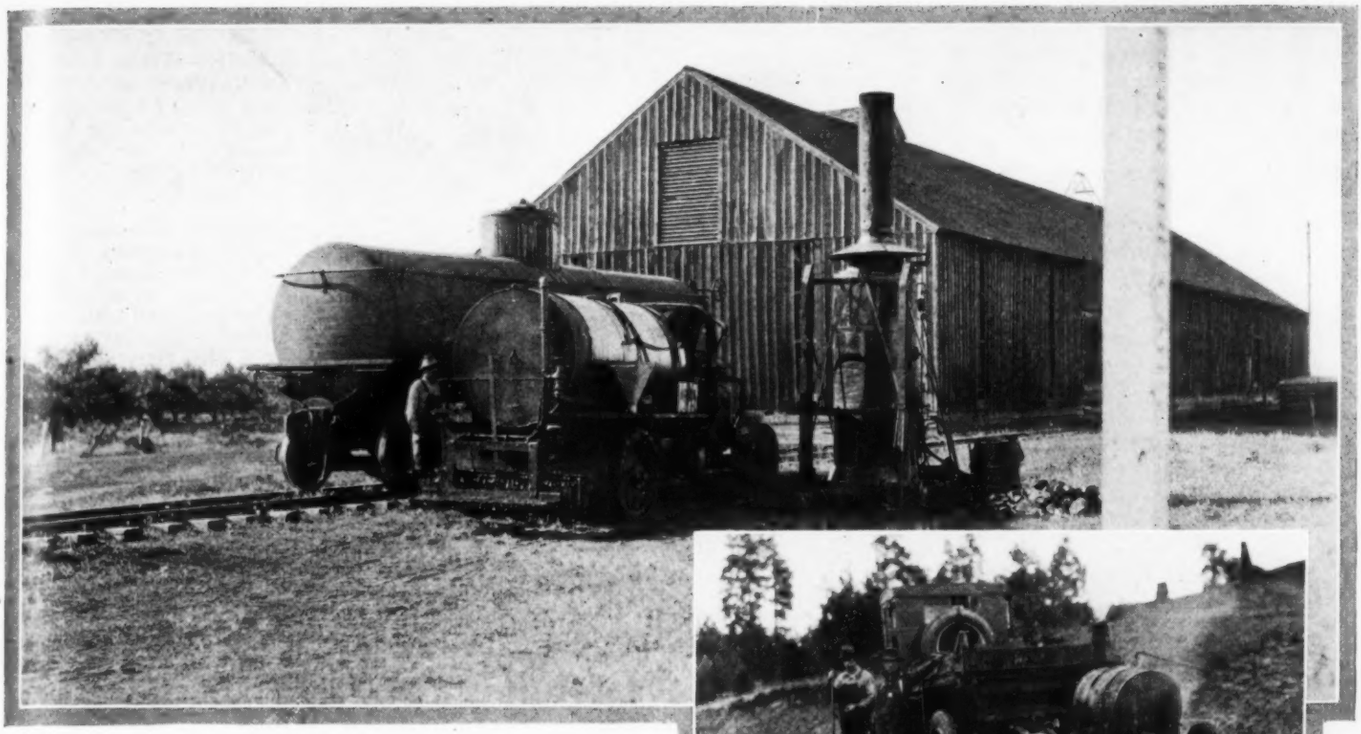
With the increase in mileage has come an increase in quantity and bituminous content of the oil used. All references to quantity in this article are for 1 mile of 18-ft. roadway. It must be remembered that oiling will not make a road but that it will merely preserve the surface of one that is solid and well drained. Wet spots in an oiled road go to pieces with disconcerting rapidity.

After 4 years of experiment in Division 5, the most successful wearing surface has been found to be built up with about 3,000 gallons of 50-60 per cent bitumen oil, 2,500 to



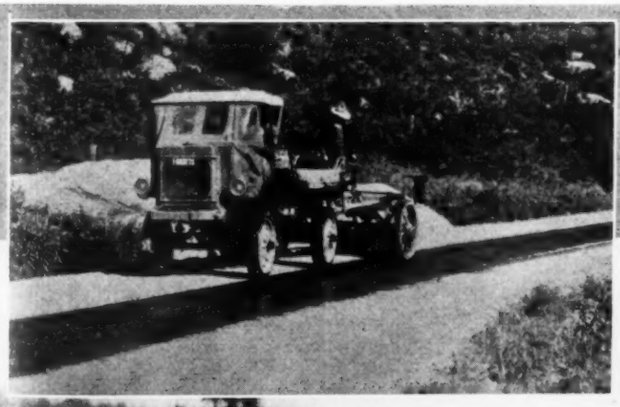
At right — Grader and tractor preparing macadam roads for oiling

Below—These two water tanks go over the road ahead of the graders



Above — The boiler shown in this photograph is used for heating heavy oil while it is still in the tank cars. This boiler is mounted on a sled which makes it easy to move

At right—Maintenance outfit for patching macadam. A patch has just been made which shows at the extreme left of the photograph. The trailer has a capacity of 50 gal.



At left—Brooming the edge of the road after the first spread of oil had been applied. The brooming equipment consists of a two-wheeled trailer with rubber tires

Below — One of the pressure oilers in operation on a typical section of Oregon's macadam roads. These machines were designed by the state highway department

At left—Truck loaded with screenings which are handled from stock piles through the trap shown in the photograph

Below — A section of oiled macadam road along the Snake River between Huntington, Oregon, and Weiser, Idaho. This is part of the Old Oregon Trail

3,000 gallons of 80-90, and 110 to 120 cu.yd. of screenings. These materials form a mat about ¾-in. thick which lasts 5 years under constant maintenance. The cost of putting down such a mat is about $1,200 a mile. It is necessary to resurface oiled roads every 10 or 12 years.

A road which is to be oiled undergoes shaping operations at least 2 weeks before the first application. Water tanks wet the road in order that blading equipment may shape the surface and remove all irregularities and corrugations. Tanks and blades keep irregularities from developing in the 2 weeks preceding the first oiling.

Before the oil is applied, the road is swept clean of all particles of rock and dust which have not become cemented in the macadam. If the macadam is not compacted, repeated broomings will only loosen it. But, if the macadam is well compacted, it is broomed 3 or 4 times, as this much sweeping has been found necessary to remove all the particles. Chain drive, rattan fiber, street sweeper brooms were first used. In 1926 the 2 wheeled, rubber tired, trailer type, attached to the rear of a truck, was adopted.

The primer course of 50-60 oil is applied at the rate of about 1,800 gallons to the mile. It is allowed to dry for about 24 hours, and then another application of 50-60 oil, 1,200 gallons to the mile, is made. After 24 to 36 hours, 2,000 gallons of 70, 80, or 90 oil is put down. Screenings are placed immediately at the rate of 60 to 100 cu.yd. to the mile. Blading operations for smoothing the surface follow. In some instances, the screenings are broomed, also.

From 1 to 6 days later, 500 to 1,000 gallons of 70-90 oil is added to take care, primarily, of places where an excess of screenings has been dumped. One to 7 days after this operation, it is frequently necessary to add 10 to 30 cu.yd. of screenings to the mile for blotting sections where oil has bled through. The road is then turned over to the patrolman.

The photographs show the equipment used in oiling roads. The oilers are of 2 types, gravity and pressure. They were designed by the equipment department, and they apply the oil in 3 2-ft. sections, controlled independently. Their capacity is 1,230 gallons. The vertical boiler used in heating heavy oils in tank cars is mounted on a sled. It can be loaded on a truck bed, or unloaded, in 15 minutes. Screenings are hauled by 4-yd. dump body trucks loaded through traps at centrally located points. In most oiling operations, pneumatic tired trucks of 1 to 1½ cu.yd. capacity go ahead of the heavy trucks and scatter screenings over the grade.

The types of heavy oil giving the most satisfactory results

are Gasco (a product of the Portland Gas and Coke Co.), 90 per cent oil of the Standard Oil Co. of California, and 70-90 per cent oil of the Gilmore Oil Co., Los Angeles. Gasco is used for patching. It will always stay unless the roadbed is at fault.

Oiling is not only proving an economy in Oregon through increasing the life of the surface, but it is also giving the state a system of smooth, dustless highways. R. H. Baldock, the man chiefly responsible for the development of oiled macadam in the state, was division engineer at La Grande in 1923, 1924, and 1925. He is now state highway maintenance engineer.

Steel Is Both Ornamental and Useful

A RATHER unusual use of structural steel is very much in evidence on a garage built in South Orange, New Jersey, which was recently constructed. The small photograph shows the building as it formerly looked and the large picture shows it as it now is. John Picken of Montclair was the contractor who handled the work, and the architects responsible for the unusual use of steel were Howard & Frenaye of New York City. As may be seen in the larger picture, they allowed the steel to show from the outside and embellished it in such a way that it fitted into the modern design of the building. The doorway shown at the right depicts various forms of transportation in glass panels executed in relief.

The ornamental steel in the front of this garage building may be seen plainly in the lower photograph. It is an unusual use of steel on a construction job of this kind

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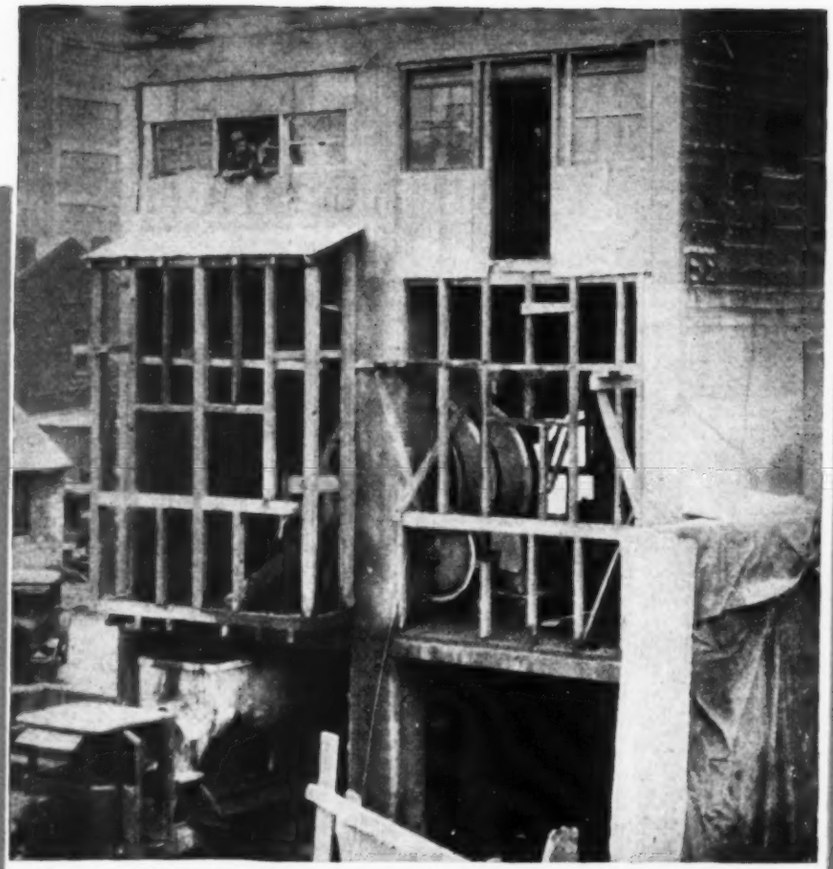
The Wheeler-Murray Co.
TAMPA, Fla.
Tampa Machinery Co.
TOLEDO, Ohio
National Supply Co.
TORONTO, Ontario,
Clare Osborn Ltd.
VANCOUVER, B. C.
B. C. Equipment Co.



Ransome 84-S in the largest Commercial Central Mixing Plant in the world. Ready Mixed Concrete Co., Pittsburgh, Pa.

Ransome—
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The fact that the world's largest commercial central mixing plant uses Ransome Mixers is pretty good evidence of how Ransomes stand with men who must have plants that can turn out big yardage and stay on the job.

For dependability plus low cost of operation and maintenance you can't beat Ransomes for Commercial Central Mixing Plant service.

Give us the answers to the following questions and we'll send you, without obligation on your part, the information you need to establish a real commercial central mixing plant.

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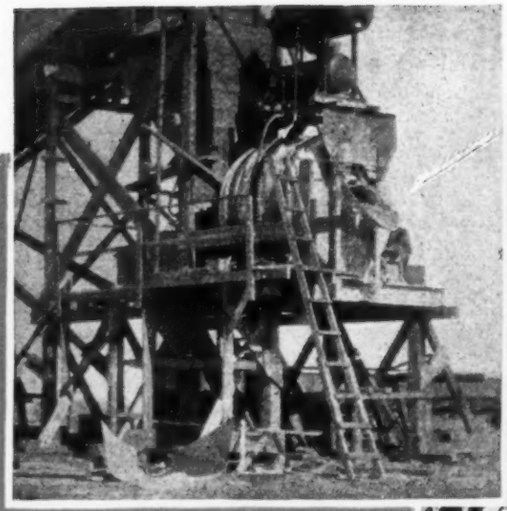
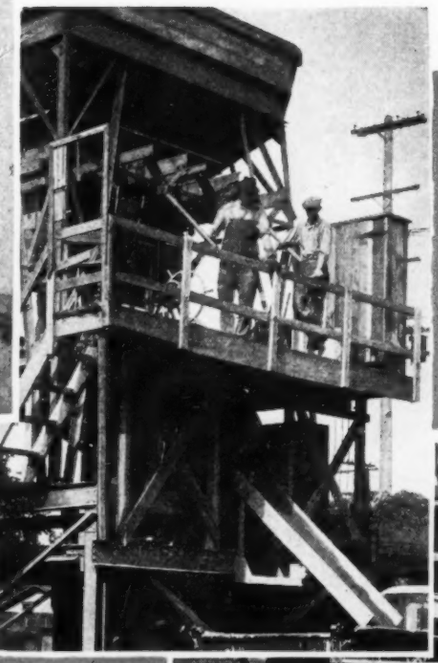
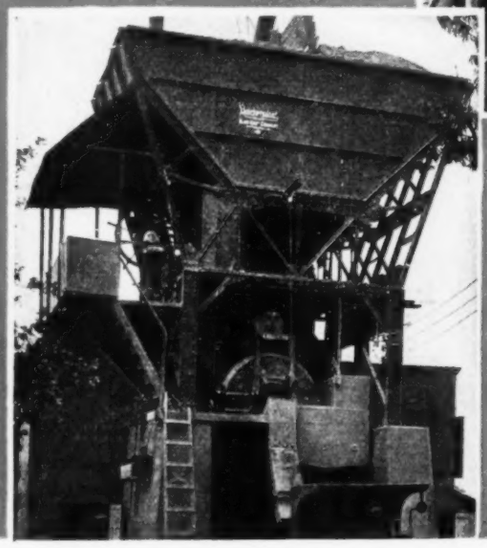


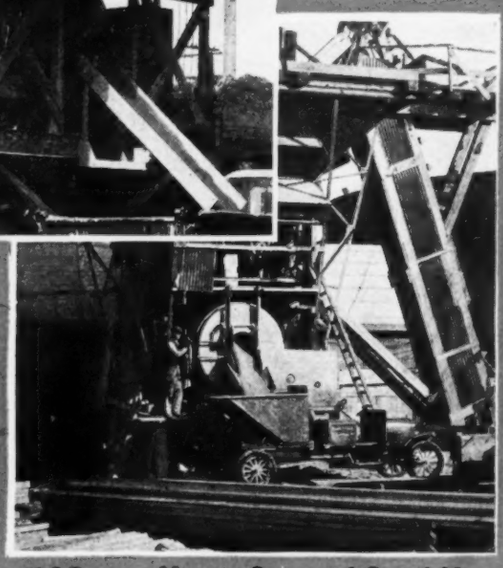
56-S Ransome Standard Building Mixer, Central Mixing Plant, fed by belt conveyor.



28-S Ransome Standard Building Mixer in Commercial Mixing Plant, fed by a full revolving crane.



28-S Ransome Standard Building Mixer, Central Mixing Plant, fed by a derrick.



28-S Ransome Mixer in Commercial Central Mixing Plant, fed by bucket elevators.

1. Maximum cubic yardage per day of ..... hours. .....
2. Maximum time local specifications require a batch to remain in the mixer drum. .....
3. Proportions of batches. .....
4. Maximum size of trucks that will be used to haul the mixed concrete from the plant. .....
5. Kind of coarse aggregates (gravel, crushed cork or slag). .....
6. Materials received by train, boat or trucks. .....
7. Cement in sacks or bulk. .....
8. Plot of space available, giving location of streets, railroad siding and other features. Send sketch.
9. Safe minimum storage capacity (depends on remoteness of supply) .....
   Cement .....
   Sand .....
   Coarse aggregates .....
10. Power available is ..... . For electrical current, give voltage if D. C. Voltage, cycles and phase if A. C.

Mixing Plants ~ ~

Building Roads Between B

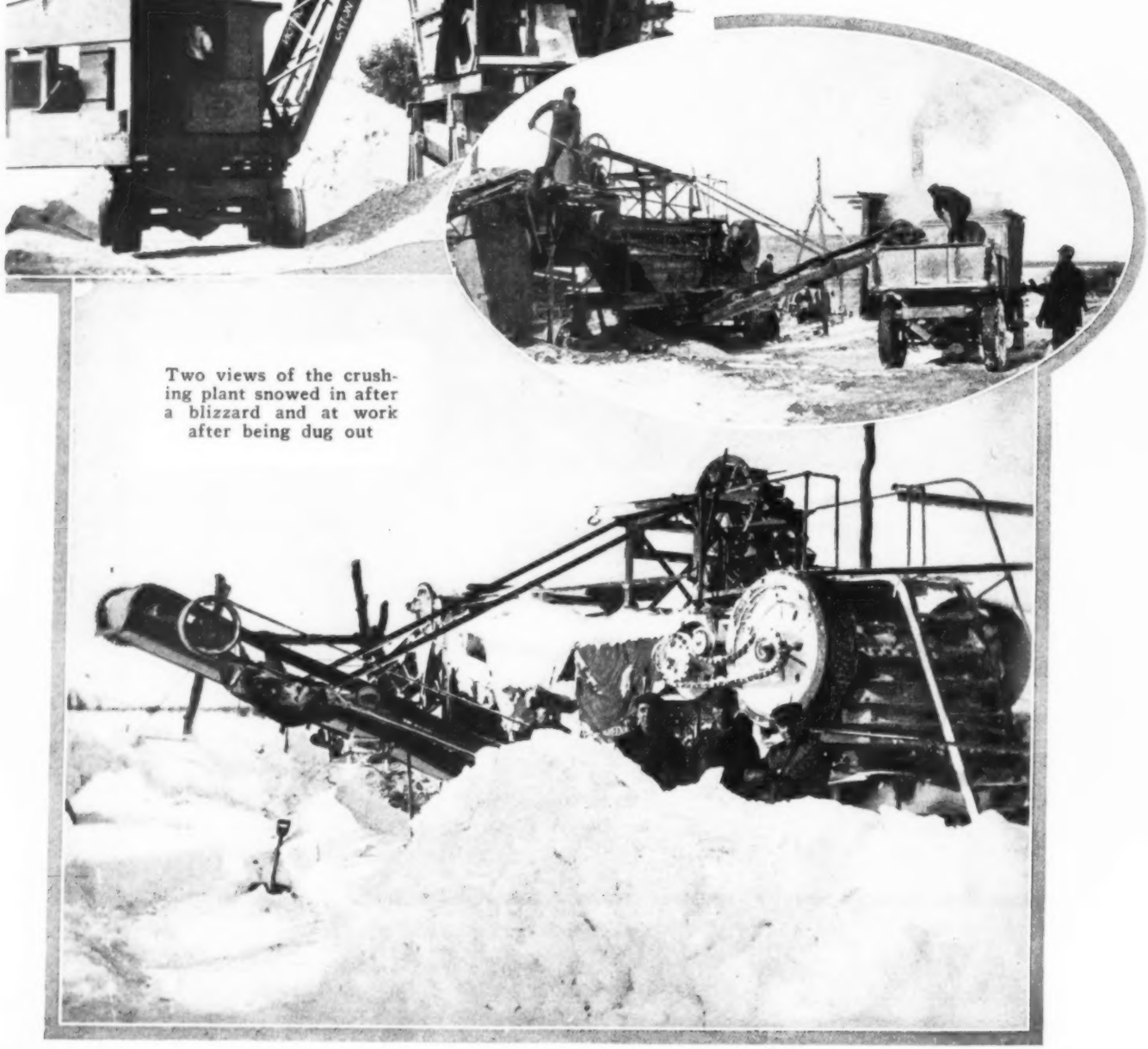
Digging Out the Machine Is the First Job on the Day's Program

HIGHWAY activities in Wisconsin are not confined to snow removal during the winter months, as may be discovered by an inspection of the pictures on this and the opposite page. They were taken on Wisconsin state trunk highway No. 13 between Kilbourn and Adams where Pugh, Emery & Gregory, contractors, of Reedsburg, Wisconsin, were resurfacing the road with gravel. Both crusher and trucks were operated at times when the thermometer was 20 degrees below zero, and the pictures show some of the difficulties which had to be overcome.

Two of the photographs on this page show the Russel crushing and screening plant used in this work. The lower photograph shows the plant as it looked after a Wisconsin blizzard, and the smaller photograph shows it under operation after it had been dug out.

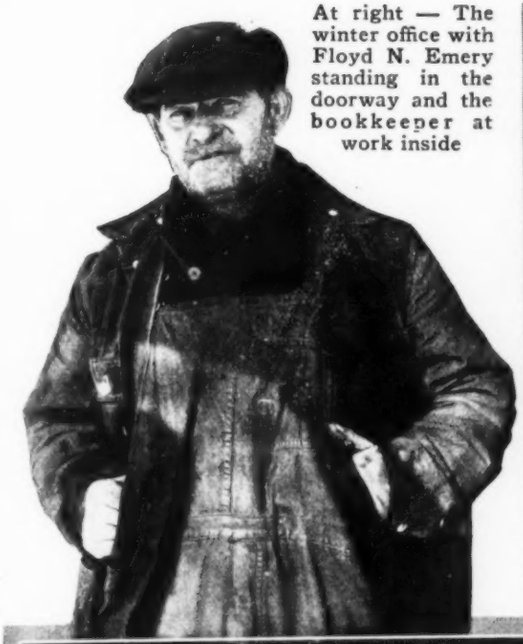
These photographs were sent to *Successful Construction Methods* by Emery G. Gregory, Secretary and Treasurer of Pugh, Emery & Gregory.

Crane at work at loading plant



Two views of the crushing plant snowed in after a blizzard and at work after being dug out

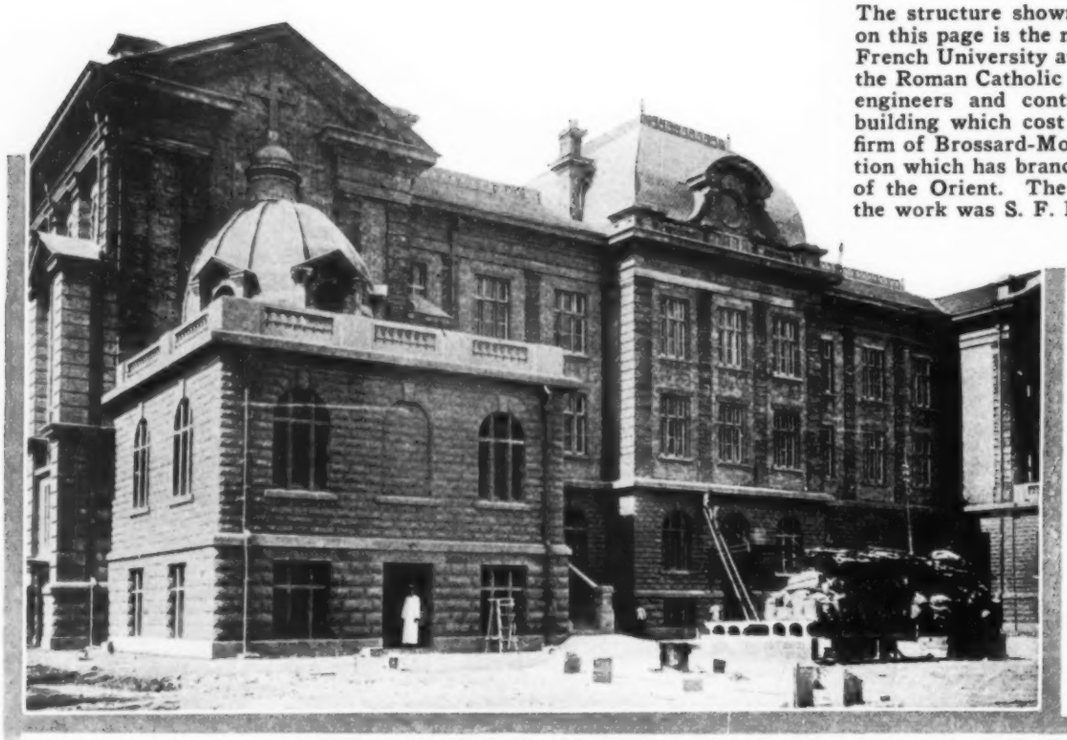
Blizzards in Wisconsin



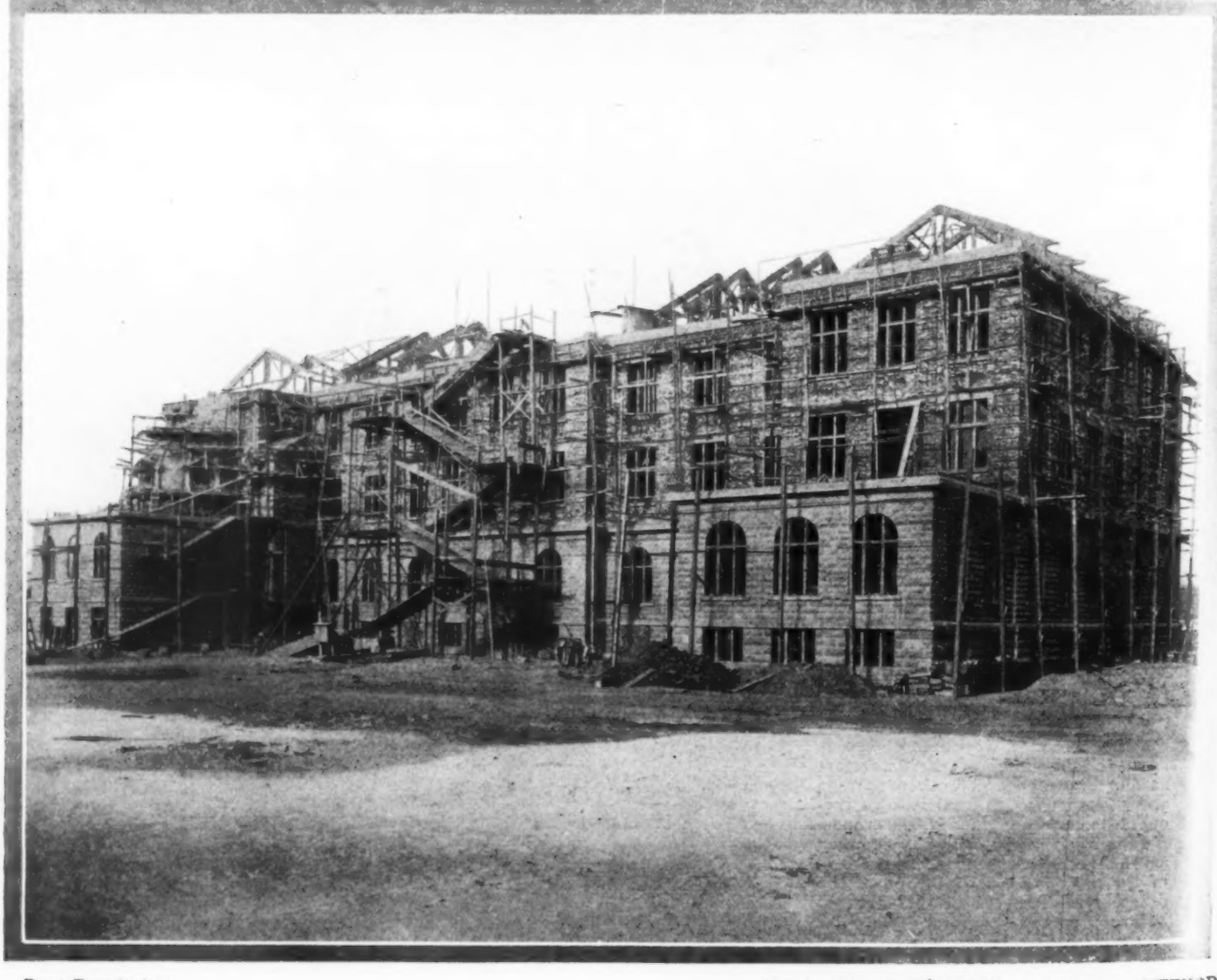
At right — The winter office with Floyd N. Emery standing in the doorway and the bookkeeper at work inside

Running a fleet of motor trucks with the thermometer way below zero is no easy job. They are hard to start as shown above and broken springs and other minor disabilities are frequent because of the frozen roads. A repair job in the open air is shown at the right. The man at the top of the page is Dad Pfeil, one of the oldest truck drivers in the state of Wisconsin, and even more popular than he is old

Circular Brick Caissons Used in F



The structure shown in the two photographs on this page is the main building of the Sino-French University at Tientsin, China, built by the Roman Catholic mission at Tientsin. The engineers and contractors who put up the building which cost about $160,000, were the firm of Brossard-Mopin of Paris, an organization which has branch offices in several states of the Orient. The man in actual charge of the work was S. F. Kozierski, who sent these photographs to *Successful* Construction *Methods.* The building was put up during a period of civil war when it was extremely difficult to get materials of any kind. It was completed only last summer. The upper photograph on this page shows the back of the University building just as the finishing touches were being put on in the latter part of last July. The lower photograph shows the front of the building and how Chinese labor handled materials.

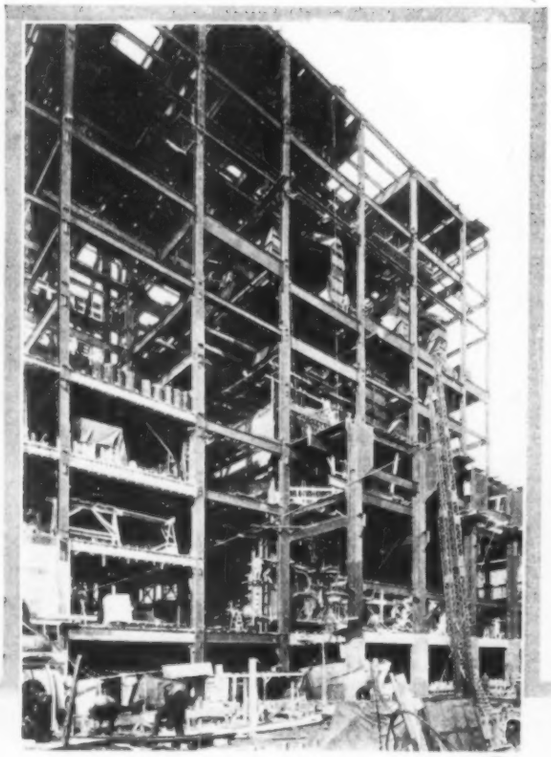


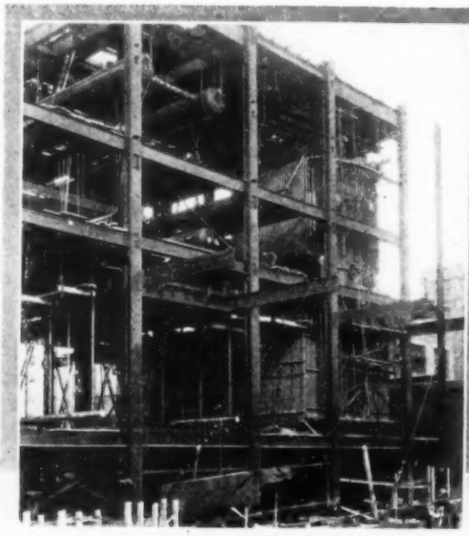
in Foundations for Sino-French University

The photographs on this page show the way in which the foundations were put in. They consist of 105 circular brick caissons 6 ft. in height and 10 ft. in diameter with reinforced concrete curbs in their bases. This foundation work was put through in record time, the entire job being completed in a little less than two months. During this period all reinforcing for the curbs was manufactured, the curbs were poured in the brick forms, the brick walls of the caissons built, the caissons sunk to their position 5 ft. below ground water level and the wells filled with concrete. At times 300 to 400 men worked on the job. The sinking was done by using five centrifugal pumps electrically operated and by dredging with hand shovels. Brick forms for the curbs were made of bricks which later were used in the masonry of the walls of the building. After the caissons were sunk, they were loaded with the brick. By using this method of putting in the foundations in extremely wet ground it was possible to avoid the use of cofferdams or piles.

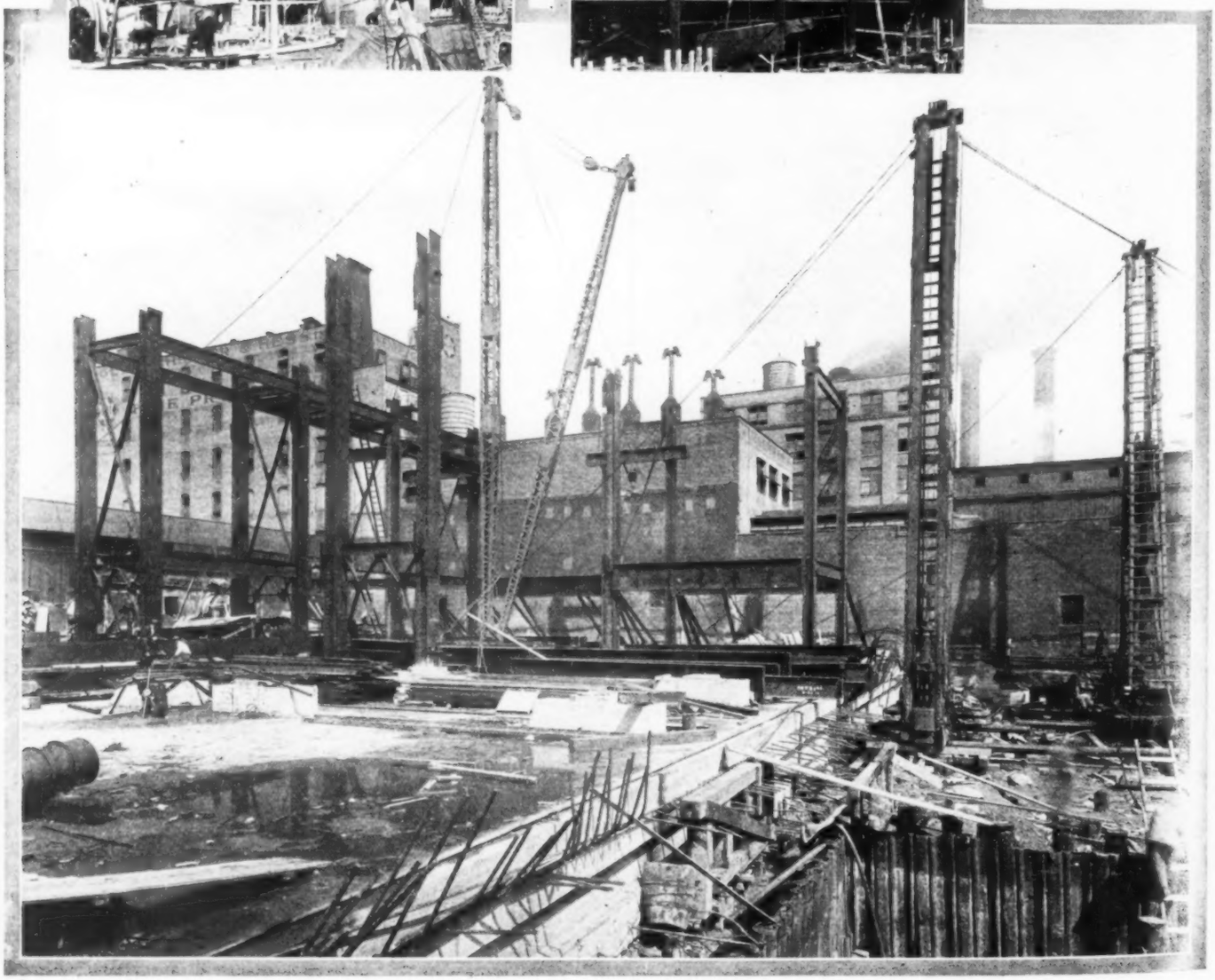
Steam Plant Begins Operation

A STEAM heating plant naturally finds its greatest usefulness during the winter months. This fact complicated the assignment which Dwight P. Robinson & Company undertook last summer for the New York Steam Corporation. A modern central steam heating plant to house twelve 10,000-hp. boilers, known as the Kip's Bay plant, was to be built at 35th St. and the East River in New York, and although steel erection did not begin until August 21,





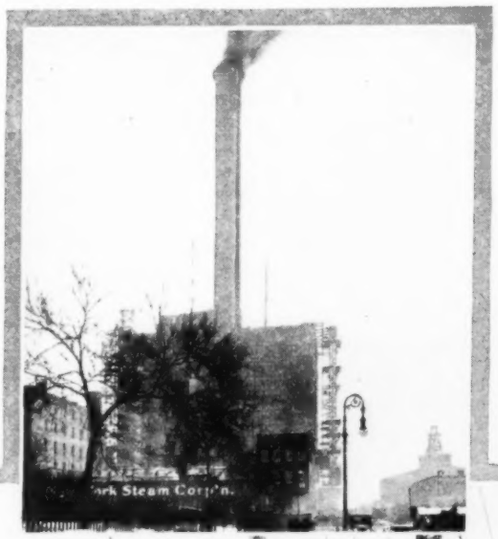
The photograph at the bottom of the page was taken early in September just after steel erection had begun. The other two pictures were taken in November and show one of the boilers in place at that time. These boilers are now operating

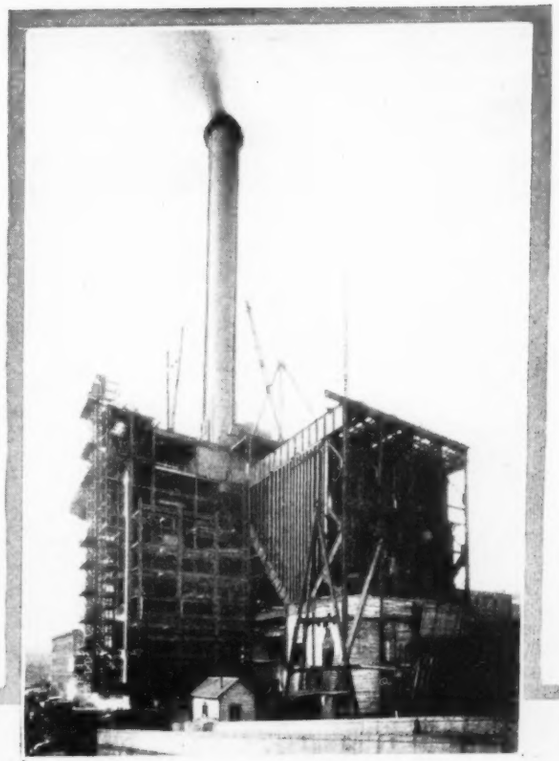


in Unfinished Building

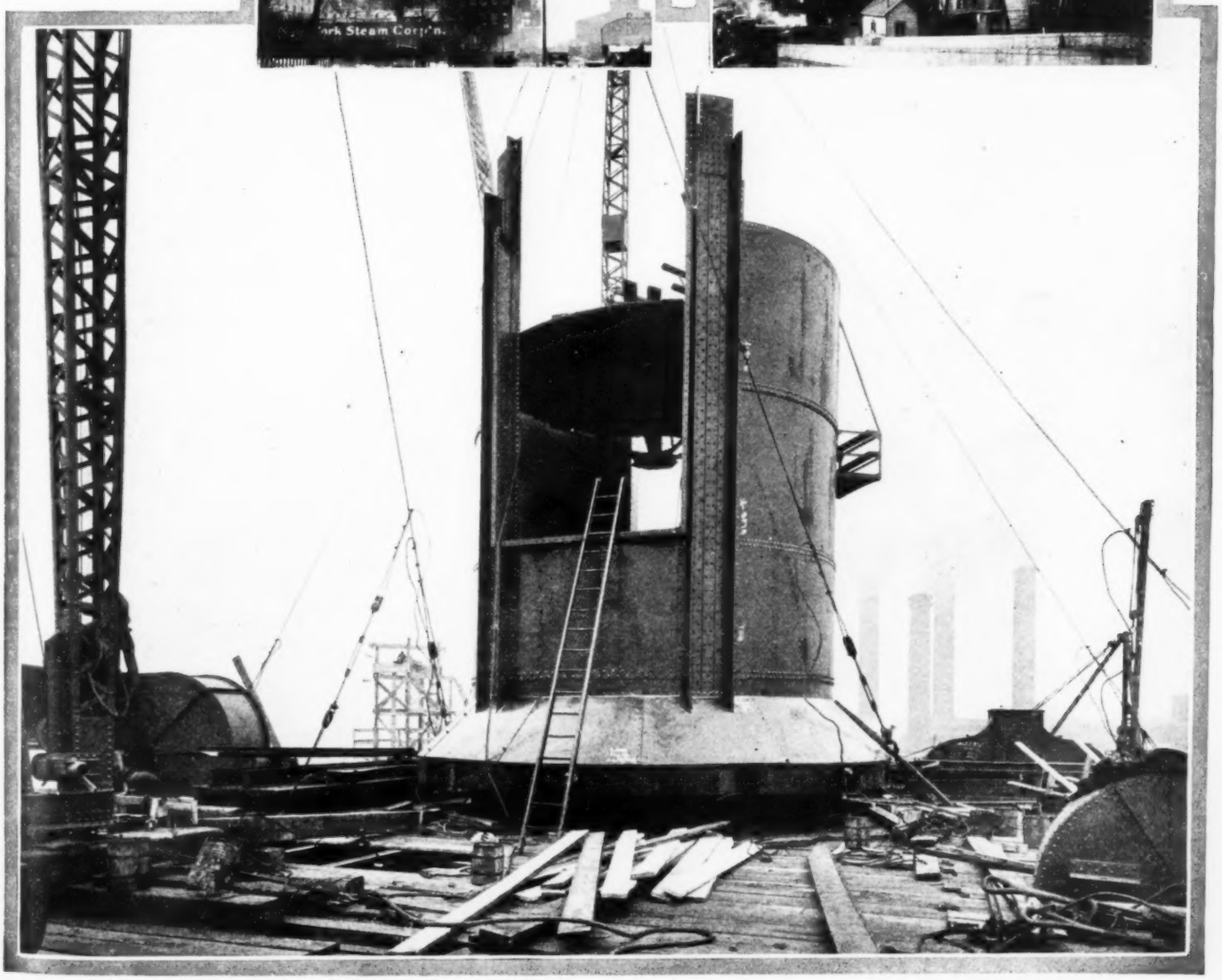
the work was carried forward so rapidly that it was possible to put the first boiler in service on December 23, just four months later. This boiler went into operation while perched in the steel structure with no walls to protect it.

The plant was designed by Thomas E. Murray, Inc., and all of the construction work was under its supervision. The stack was put up by Post & McCord, Inc., and the boiler work was handled by the Combustion Engineering Corp.





The big steel stack was put up in about one month. The lower photograph was taken on November 28th. The smaller of the two upper pictures was taken a few days ago and gives a good idea of the present appearance of the still unfinished structure

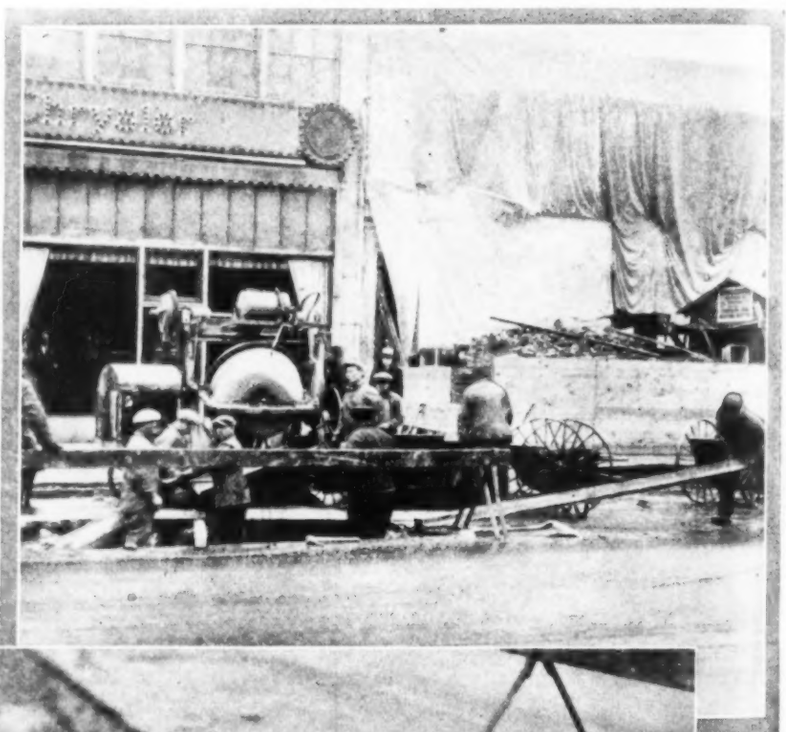


Air Tools Make Rapid Progress

Work Through All Sorts of Cutting Trench in

THE demands upon the big public utilities for increased service are so continuous that weather conditions have to be disregarded so far as possible and work must go on throughout the year. The pictures which accompany this article show the laying of vitrified clay duct for carrying telephone cables in Detroit. This particular job was handled for the Michigan Bell Telephone Company by A. J. Penote, a Detroit contractor. The job was not begun until cold weather had set in and has been carried on without regard for the frequent changes of weather, including several days when the thermometer was around the zero mark.

Compressed air was used both in opening and backfilling the trench which had an average width of 25 in. and an average depth of 8 ft. It is in Cass Avenue, and work has been going forward at the rate of about 1 mile a month. Paving breakers operated by a portable Ingersoll-Rand compressor were used to cut through the asphalt and concrete. Clay diggers also were operated to dig the clay, and the vitrified clay duct was



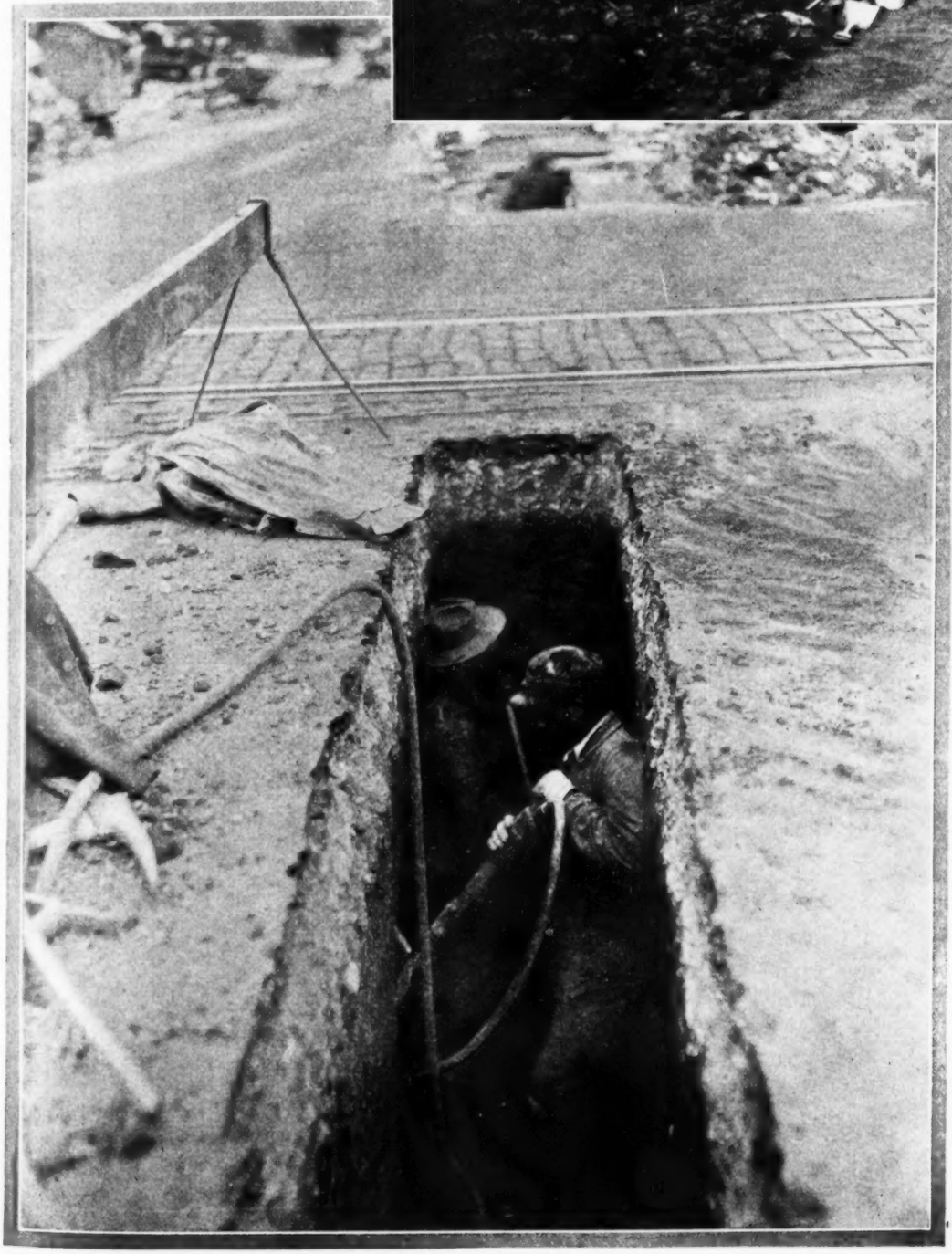
At right—Pouring a manhole in freezing weather

Below—The same manhole after the concrete had been poured

in Laying Conduit for Telephone

Weather While Detroit

then installed. The process of backfilling consisted of tamping in the clay and filling over with a mixture of hay and straw. The pavement was then replaced in as neat a manner as possible and will be left until spring when a permanent pavement will be laid. The work of replacing the pavement after putting in the layer of hay and straw is shown



The portable compressor shown in the upper photograph operated the air tools used in digging the trench. The lower photograph is a closeup of the trench with two men in it engaged in getting out the clay. The digging of this trench went forward at the rate of about one mile a month. It was about 25 in. wide and averaged 8 ft. in depth. Air tools also were used in backfilling

These two photographs show the lorry used as a tool and supply house. At the right of the top picture is an oil barrel resting in a cradle made by the simple process of turning over a wheelbarrow

in one of the pnotographs at the bottom of this page.

All of the tools were taken care of in a big lorry shown at the top of this page. This also furnished a warm place for the men to dry wet clothing and many of them used it as a lunch room on cold days. It proved its worth in more ways than one and in the estimation of the man was one of the most popular pieces of equipment on the job. They appreciated the chance to get inside out of the wind.

This Haiss loader was used throughout the job to pick up the excavated material that had to be carted away

The photograph below shows the filling in of the trench after the clay had been tamped into place. Hay and straw were used to cover the clay and the asphalt then was replaced. Permanent paving will be done in the spring

Winter Is Still With Us

Below—Minnesota is keeping its trunk highways open, a practice which was begun last winter. This photograph shows a bus in the northern part of the state which was enabled to maintain its schedule because of the work of the State Highway Department

Below — Another Minnesota view, showing the great depth of the snow and one of the state highway snow fighting units coming down the road. In many cases the highways have been kept open in storms which blocked the roads

Above — The snow fighting gang greeting one of their wayside friends

Below — Since Michigan's snow station was described in the February issue, several storms have added to the height of the drifts

Building Through the Old Shop

Railway's Repair Work Continues Without Interruption While the New Structure Is Going Up

HOW to enlarge an old plant without interfering with its operation during construction is a problem which the contractor is often called upon to face. The Chesapeake and Ohio Railroad Company has been making extensive additions to its Huntington, W. Va., shops. The program required the boiler shop built more than 40 years ago to be replaced by a building large enough to take care of the long boilers used on the heavy locomotives of today. The company needed the space in the old shop, and it was impossible to dismantle it and clear the ground before starting to erect the new building. So the contractor did the next best thing—built through it and around it.

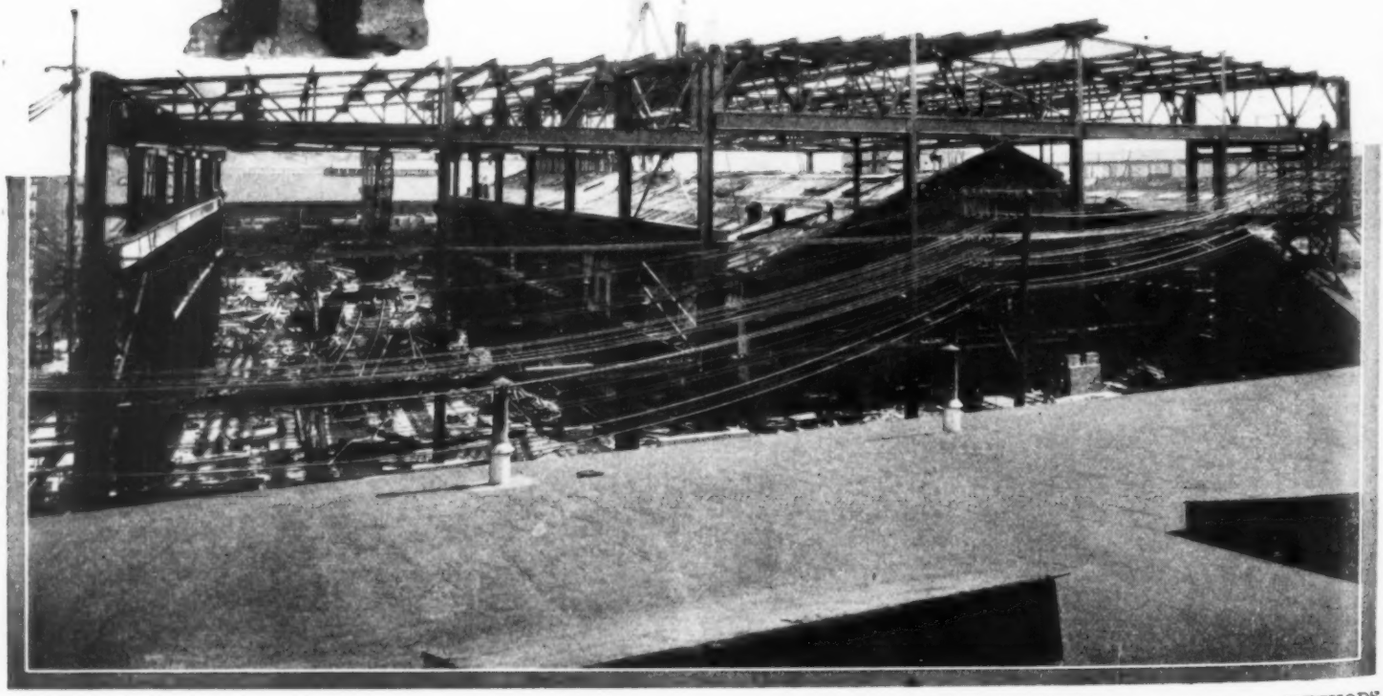
Louis Roth, superintendent on the job

The pictures offer a good idea of the layout of the new shop in relation to the old and also show the method of erecting the steel. The piers under the columns rest on pads 12 ft. by 10 ft. at a depth of 10 ft. The footings and piers inside the old shop were put in without removing a rail or track or interfering with work in the pits.

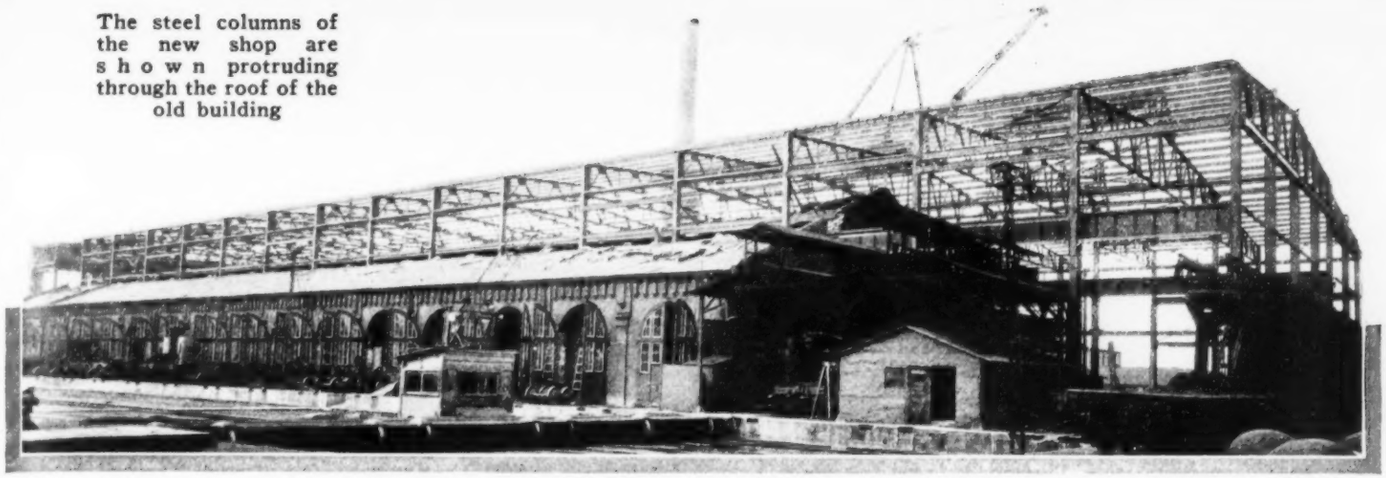
The fact that one wall of the new building runs through the length of the old shop added to the difficulty of setting the columns. Several bays were erected outside the old shop, and a derrick was erected on top of these. Columns and girders inside the shop were then set by dropping them through holes in the roof. In spite of the handicap erection went forward in this fashion at the rate of one bay a day.

As may be seen from the photographs, the new shop looks like a giant beside the old brick building. The new structure is 404 ft. in length, 150 ft. wide and 46 ft. in height. About 8,000 yd. of concrete went into the new building, approximately 600,000 bricks and more than 800 tons of steel. A Jaeger No. 3 mixer was used for pouring the concrete. The total cost of the new building, including the heavy machinery necessary in a railroad repair shop, was about $850,000. One 50-ton crane and two 15-ton cranes are the main units of equipment in the new shop. Work was begun in December, 1925, and the building was completed in the latter part of 1926. An average of 50 men were employed on the job by the Hanke organization. The manner in which the work was carried forward without inter-

The new shop built above the old brick building which may be seen in the center of the photograph



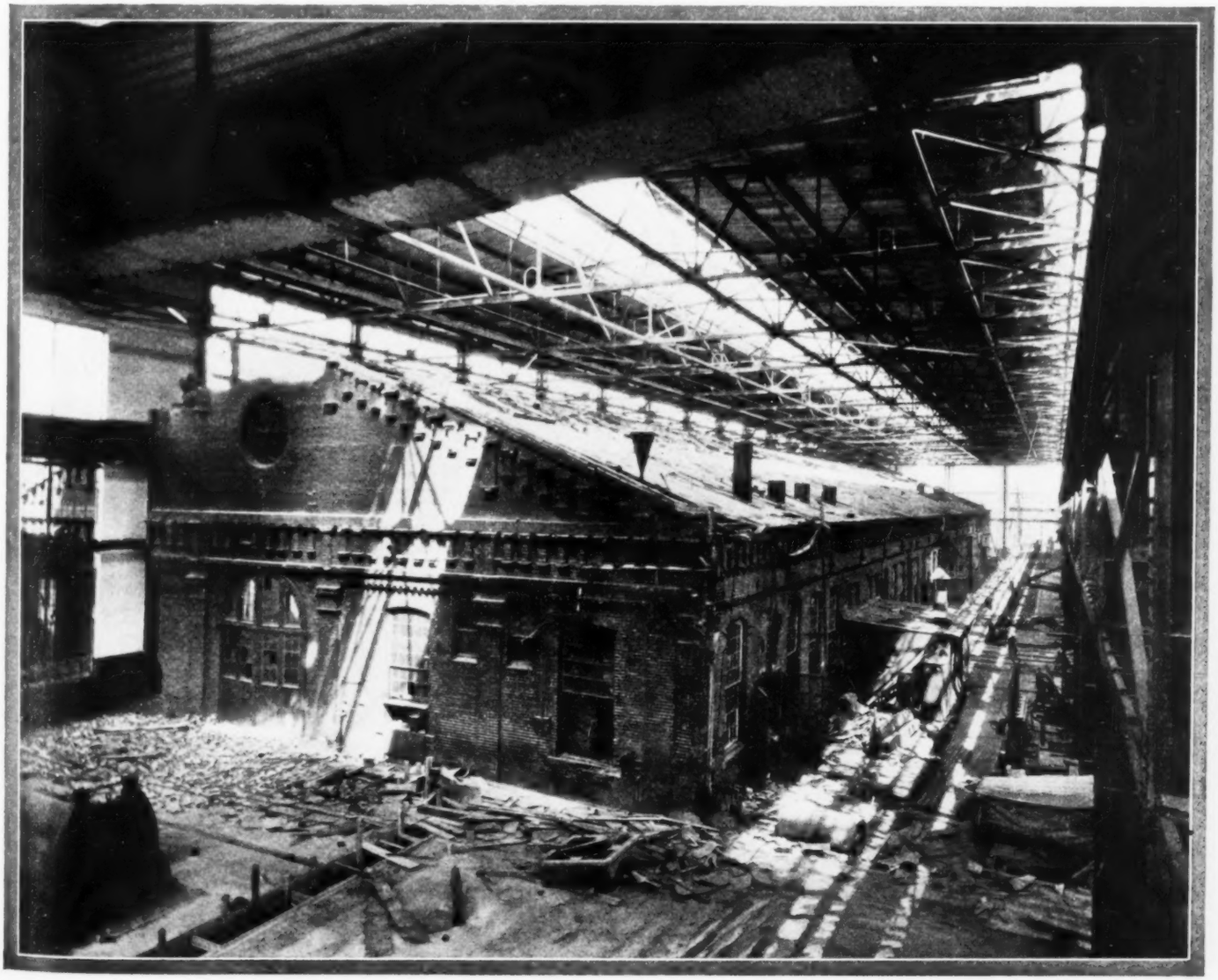
The steel columns of the new shop are shown protruding through the roof of the old building



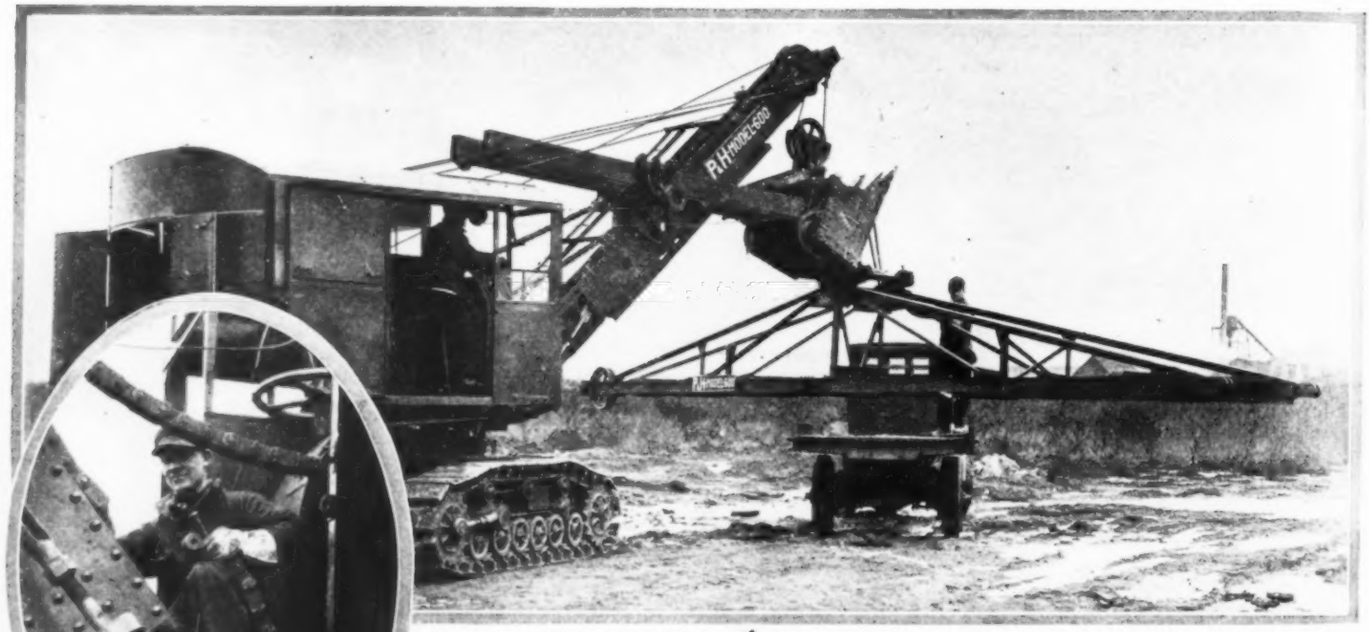
fering with the activities of the old shop occasioned considerable comment among both railroad and construction men who saw the job under way.

As may be seen from the photograph at the bottom of this page, the new building will be a much pleasanter place in which to work than the old as in addition to being so much greater in size, it will be of modern construction so far as lighting is concerned, and will have ample facilities to take care of the repair work of the Chesapeake & Ohio in the Huntington section for many years to come. It was designed by the engineering department of the C. & O. and is being built under the supervision of H. L. Vandament, District Engineer. Louis Roth is superintending the job for the M. R. Hanke Co. of Cincinnati, the general contractors.

Interior of the new shop with the greater part of the building under cover. Repair work on railroad equipment was going on inside when this picture was taken



Step-by-Step Field Methods—How to



1 AFTER USING a power shovel to excavate gravel the August Schroeder Construction Co., Milwaukee, decided to convert the machine—a Harnischfeger No. 600 model—into a dragline excavator for stripping overburden in another part of the pit. The first step in changing booms involved—

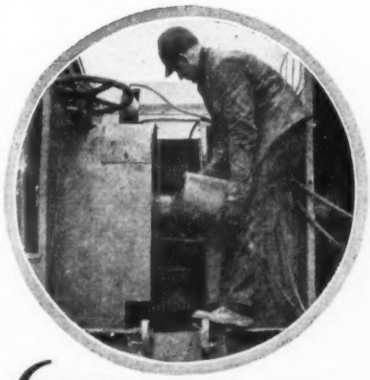
2 DISCONNECTING the crowding chain and removing it from the drum sprocket. Then the—

3 SWING BRACES were disconnected and the machine was backed away from the shovel boom, which was cribbed up for future use when needed. To change the size of the crowding drum the next step was to—

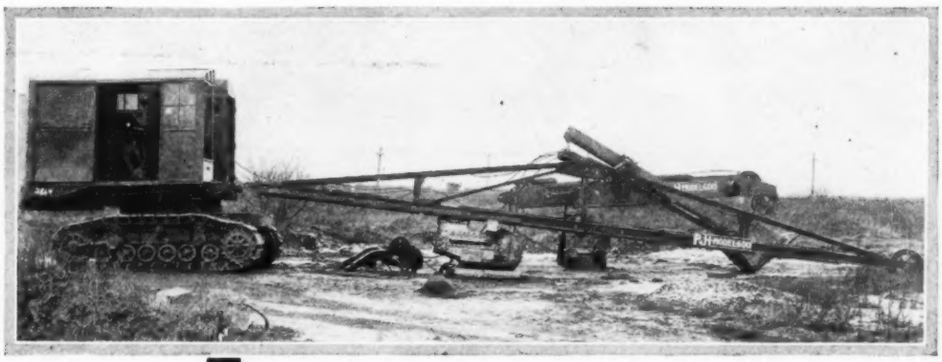
4 UNBOLT the split sprocket lagging and detach the lagging from the spider, after which the—

5 PLANETARY PINIONS were removed from the reverse crowding mechanism and the—

to CHANGE AN EXCAVATOR BOOM

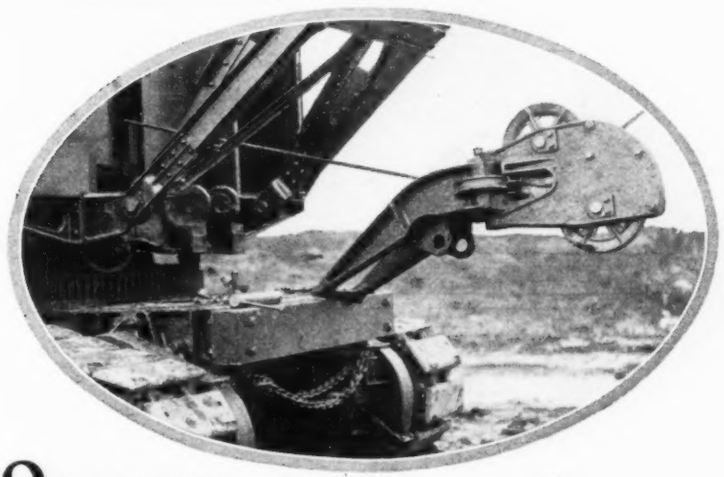


6 SPLIT LAGGING, tapered, was placed in position on the spider. Then the machine was—



7 MOVED into place for attaching the dragline boom. Note dragline boom on top of bucket to get proper elevation for boom foot connection.

8 SPOTTING the dragline boom foot with a pinch bar and inserting the boom foot pins was the next operation, after which—



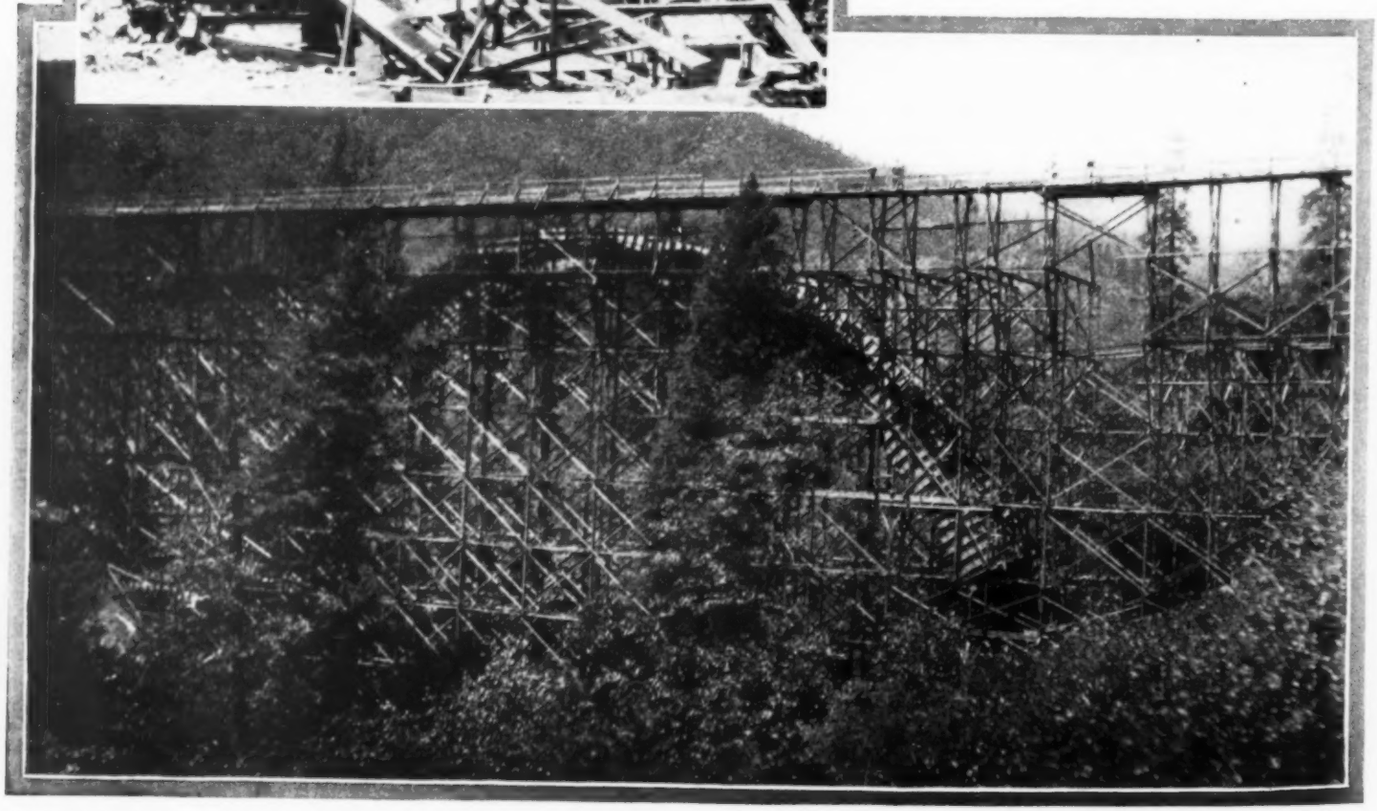
9 THE FAIRLEAD was properly placed by the use of engine power. Why break your back lifting this heavy fairlead by hand when the engine can do the job?

10 FINALLY, the conversion of the power shovel into a dragline, merely by shifting booms, is completed and the outfit is ready for the job.

New Concrete Bridge Shortens Route o

Second of Three Structures Built in Less Than Ten Months

THE second of three big arch bridges on the Pacific Highway in northern California has just been completed under the direction of the California Highway Commission. The new structure, known as the Doney Creek Bridge, is in Shasta County and considerably shortens the route between Dunsmuir and LaMoine. The Doney Creek Bridge has a span of 175 ft. It is an open spandrel two ribbed arch with spandrel columns spaced at 14-ft. centers and with four approach spans on the south end and five on the north end, each 33 ft. in length making the total length of the bridge 499 ft. Its clear roadway width is 24 ft. The contractors who built the bridge are Bordwell & Zimmerman, Mr. Bordwell being in direct charge of the work. The photographs on this page show the bridge under construction and the temporary foot bridge that was erected across the canyon to facilitate the work. The upper photograph shows chute in place for the pouring of the concrete arches, 20th Century mixers being used. W. H. Johnson was the resident engineer for the state highway commission.

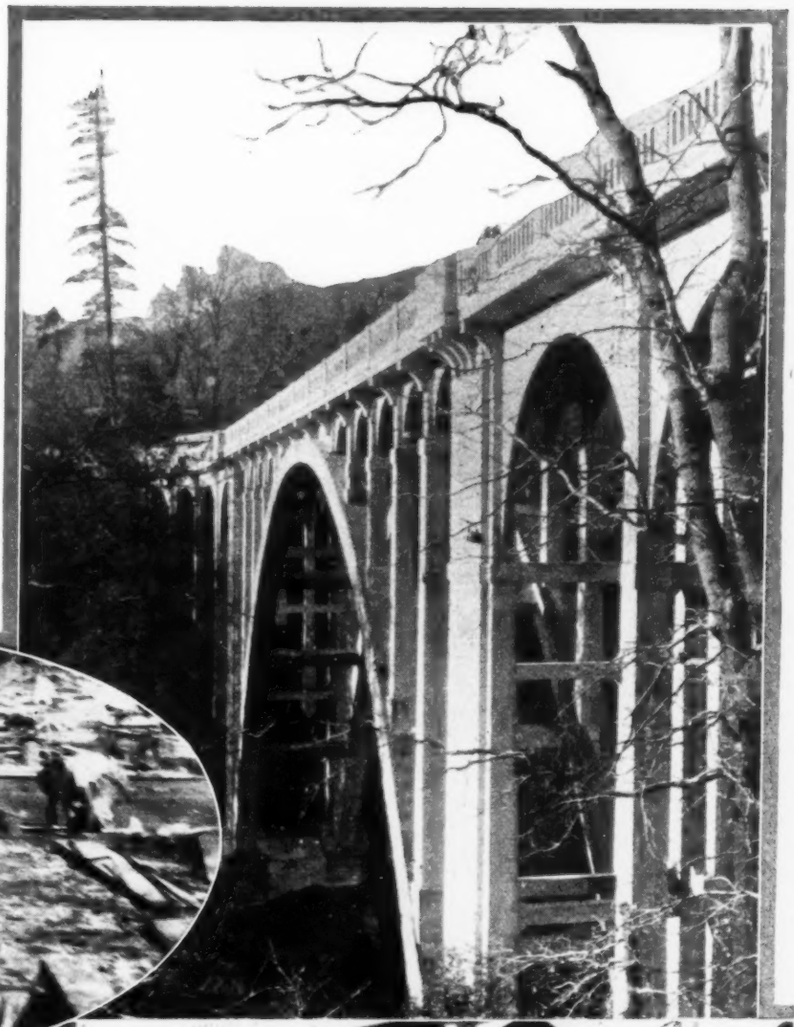


These two photographs taken in June of last year show the bridge while the pouring of concrete was under way

# of Pacific Highway in California

The Charley Creek Bridge, the first of the three big arch bridges on the Pacific Highway in northern California, was finished last summer and the third structure, known as the Harlan D. Miller bridge which crosses Dog Creek, is now under construction and probably will be completed by next summer in time to accommodate the heavy summer interstate traffic. Bordwell & Brugge have the contract for the Miller Bridge. Bordwell & Zimmerman built the Charley Creek Bridge.

The construction of all three of these bridges has been pushed as rapidly as consistent with careful and safe work in order to take care of the increased traffic on the Pacific Highway.



In January of this year the bridge was ready for traffic. The small picture shows one of the natives of Shasta County who made a thorough inspection of the job

SEQUENCE of Construction Stages

BEGUN last summer, work on Master Printers Building in New York, a 20-story reinforced-concrete structure designed for heavy floor loads and with 30,000

1 PRELIMINARY to starting work last summer on the Master Printers Building, which the R. W. Smith Construction Co. is erecting at Tenth Ave. and 34th St., New York, it was necessary to clear the site by wrecking a group of old brick and stone buildings. After Walter Peterson had been assigned to the job as general superintendent, the debris was cleared away (photo taken Aug. 3, 1926) and—

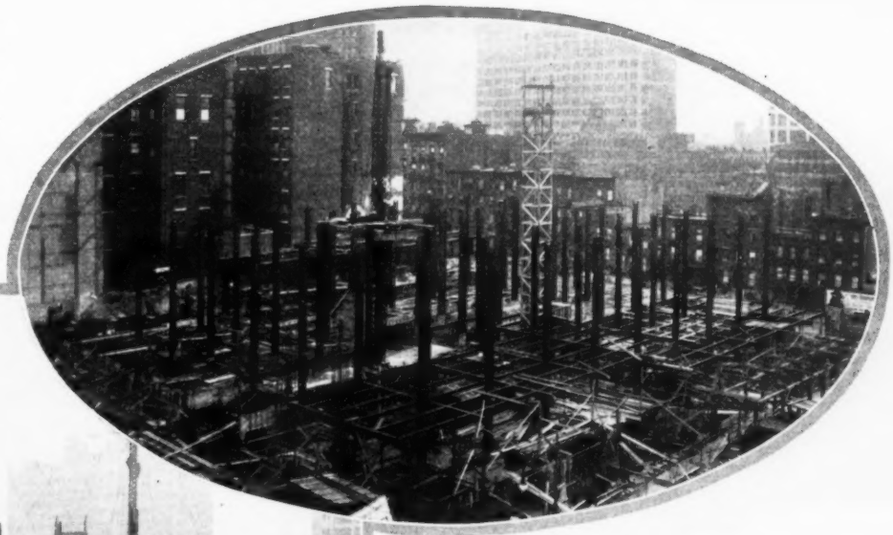
2 EXCAVATION for the basement and foundation was begun A. Bergman, superintendent for the Godwin Construction Co., subcontractor on the foundations, put two steam shovels on the job installed an air compressor plant at the street curb for rock drilling operations, and set up a couple of stiff-leg derricks so that on Sept. 1, when this photo was taken, material-handling operations were in full swing. On the heels of the foundation work came the—

3 PREPARATIONS FOR STEEL, involving set-up and rigging of guy derricks by Levering & Garrigues Co., subcontractor. This view, (Oct. 22) shows progress made under the direction of George Lane, superintendent, and Gunter Gunnison, general foreman for the steel subcontractor. A week later a number of the—

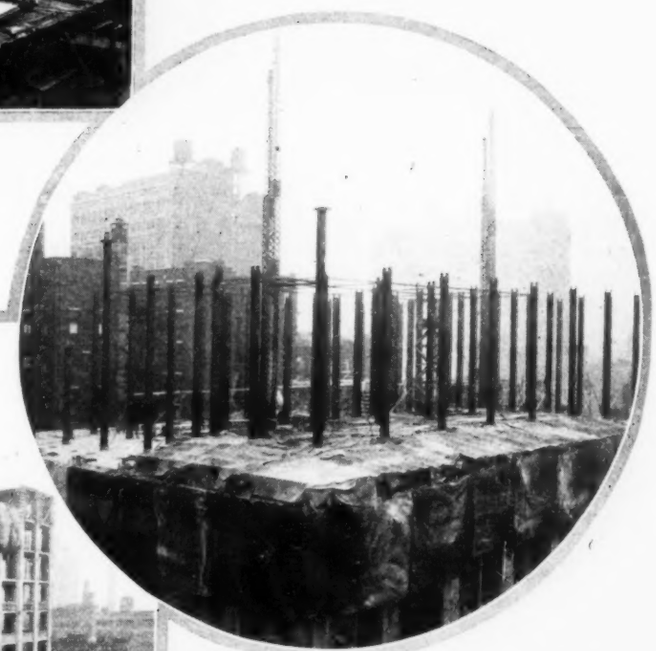
4 STEEL COLUMNS had been set in place (Oct. 29), later to be inclosed in casings of concrete. As the steel erection continued, it became necessary to plan for—

on a Big Concrete Building Job

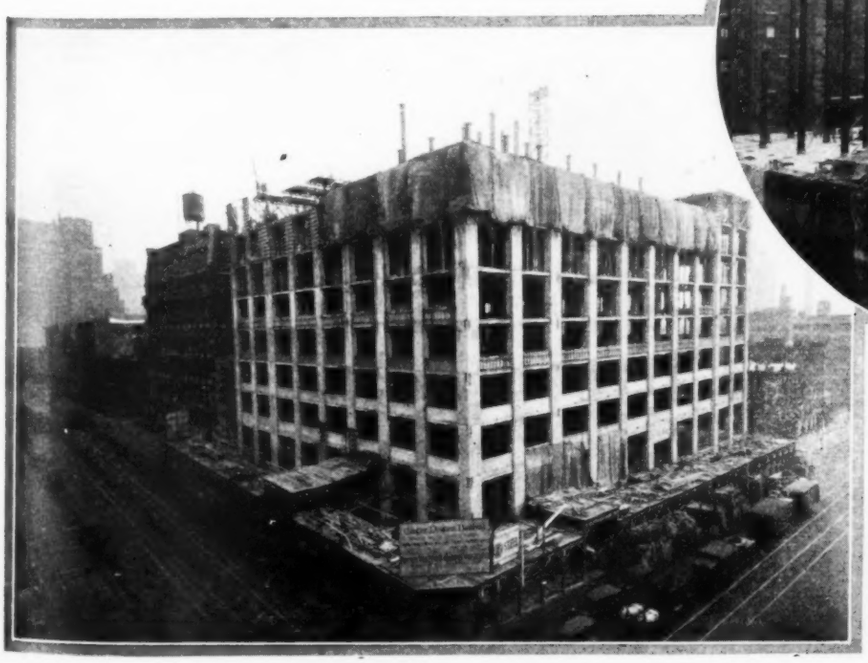
sq.ft. of area per floor, was continued during winter months. The structure ranks among the largest reinforced-concrete buildings which have been erected.



5 RAISING THE DERRICKS to provide for the handling of the steel for the upper stories of the structure. This view, taken Nov. 15, also shows the vertical shaft for the material-handling elevators. While these operations were in progress a new phase of the job schedule was begun when—



6 FORMS for concreting the columns and girders of the lower story levels of the building were set in place and poured. Note derricks set up at new elevation. By this time (Dec. 22) the structure had begun to take shape and although winter weather had arrived, the Smith organization proceeded with the job by—



7 PROTECTING GREEN CONCRETE with a covering of tarpaulins (photo Dec. 27), setting up salamanders within building, and taking other precautions to insure soundness of construction under cold-weather conditions. The next view shows progress in erecting this—

8 MASSIVE STRUCTURE (photo Feb. 9, 1927) designed for exceptionally high floor loads to accommodate the heavy printing machinery which will operate in the completed building.

NEW EQUIPMENT ON THE JOB

New Shovel for Small Jobs

A NEW light duty machine with ½ cu.yd. capacity and called Model 300 has been brought out by the Harnischfeger Sales Corporation of Milwaukee, Wis. This machine is built especially for the contractor specializing in small jobs such as basement excavations where an exceedingly short tail swing and the ability to travel in close quarters are important requirements. The Model 300 has a tail swing of 7 ft. 1½ in., a swing speed of 5¼ r.p.m., and is operated by a 50-hp. gas motor. The hoist is independent of the swing. The machine has been so made that it can be used with various attachments including a shovel, dragline, clamshell, crane, pile driver or magnet. In operating with a clamshell it is equipped with a 30-ft. boom.

An interesting feature of the new machine is what is known as the foolproof boom hoist braking system. In

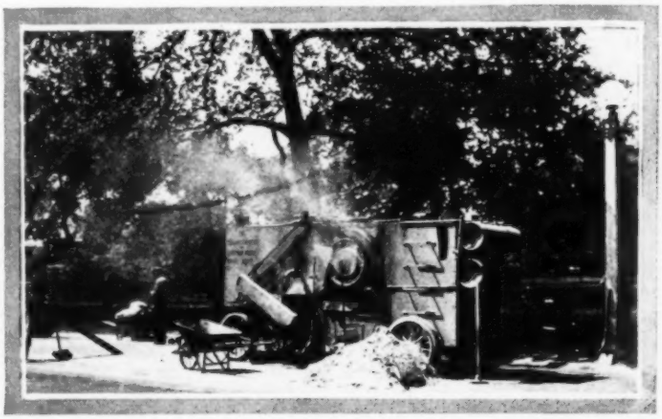
addition to a foot-operated band brake and a pawl and ratchet for holding the boom in a fixed position, the excavator is equipped with a lowering control load brake which prevents the boom from dropping. This load brake has been used on P. & H. electric overhead cranes 30 years.

Portable Asphalt Plant

THE new model of the Chausse portable asphalt repair plant made by the Chausse Oil Burner Company of Elkhart, Indiana, is shown in the accompanying photograph working on a boulevard repair job in Lincoln Park, Chicago. This machine is equipped with a rotary sand drier, pug mill mixer, oil burners and measuring devices such as are found in stationary plants.

The capacity of this plant is 150 sq.yd. of 2-in. compacted mix per 8-hr. day and it will operate economically in producing either a small or comparatively large amount of asphalt. It can turn out a 450-lb. batch sufficient to cover 2½ sq.yd. with 2-in. compacted asphalt in every 5 to 6 minutes.

The machine has bin storage for 135 gal. of asphalt, 2½ cu.yd. of mineral aggregate, 18 bags or 1,750 lb. of lime



dust or cement, and tanks to hold 60 gal. of kerosene and 9 gal. of gasoline. The weight of tanks and bins empty is 9,400 lb.

A Sturdy Half-Yard Shovel

A NEW Bear Cat shovel with a capacity of ½ cu.yd. has been brought out by the Byers Machine Company of Ravenna, Ohio. This shovel, known as Model 27-R will do practically all the work required of a small shovel.

A feature of the new machine is the rope crowd. This is accomplished by a clutch at each end, each of which operates the drum in the opposite direction. The two clutches are controlled by one lever.

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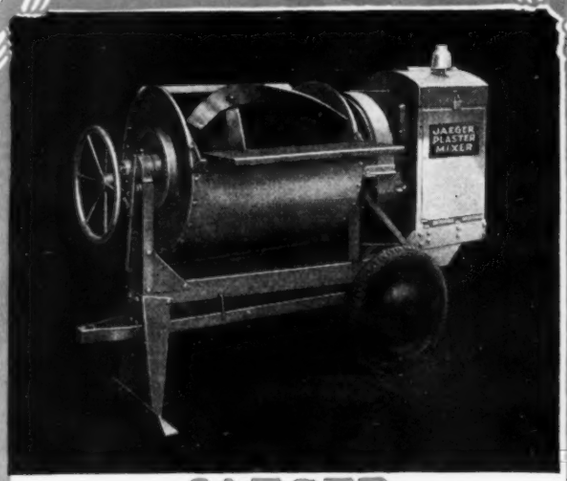

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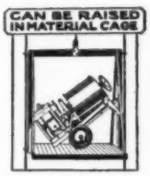

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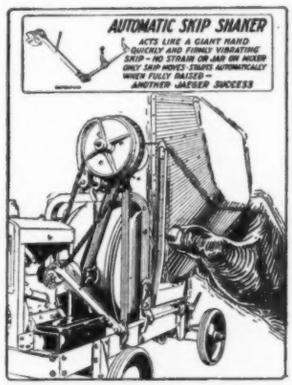

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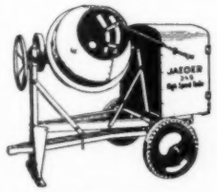

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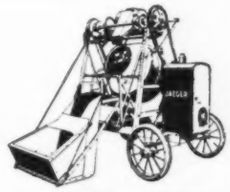

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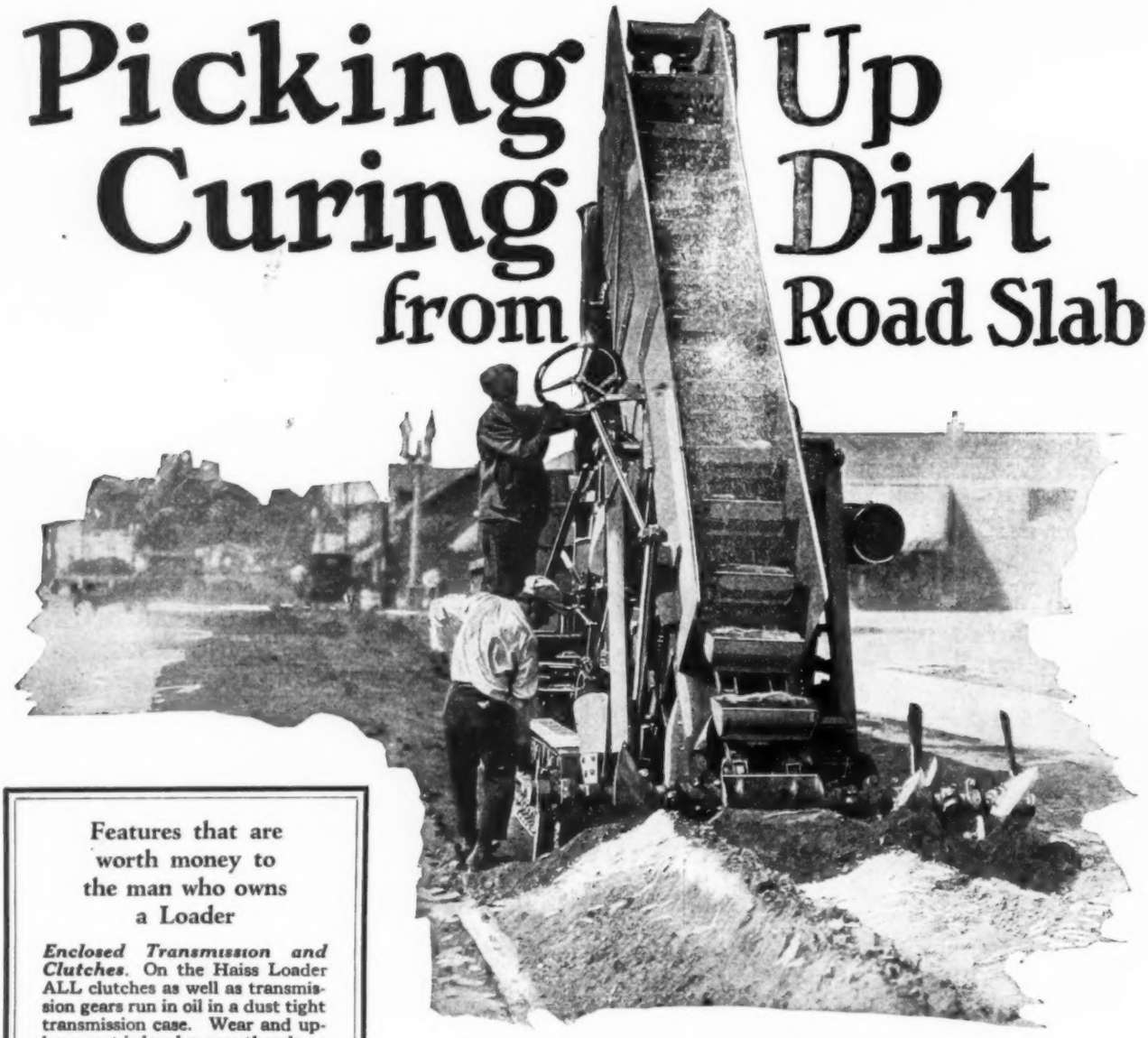

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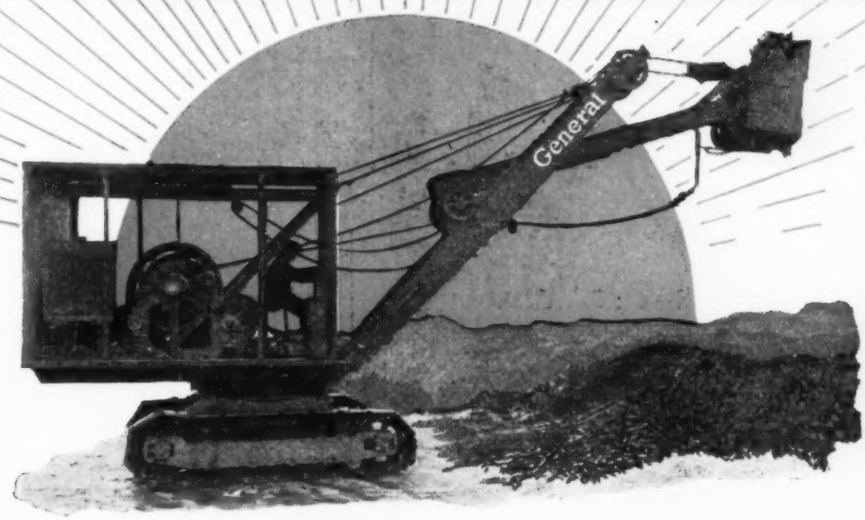

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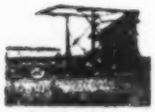
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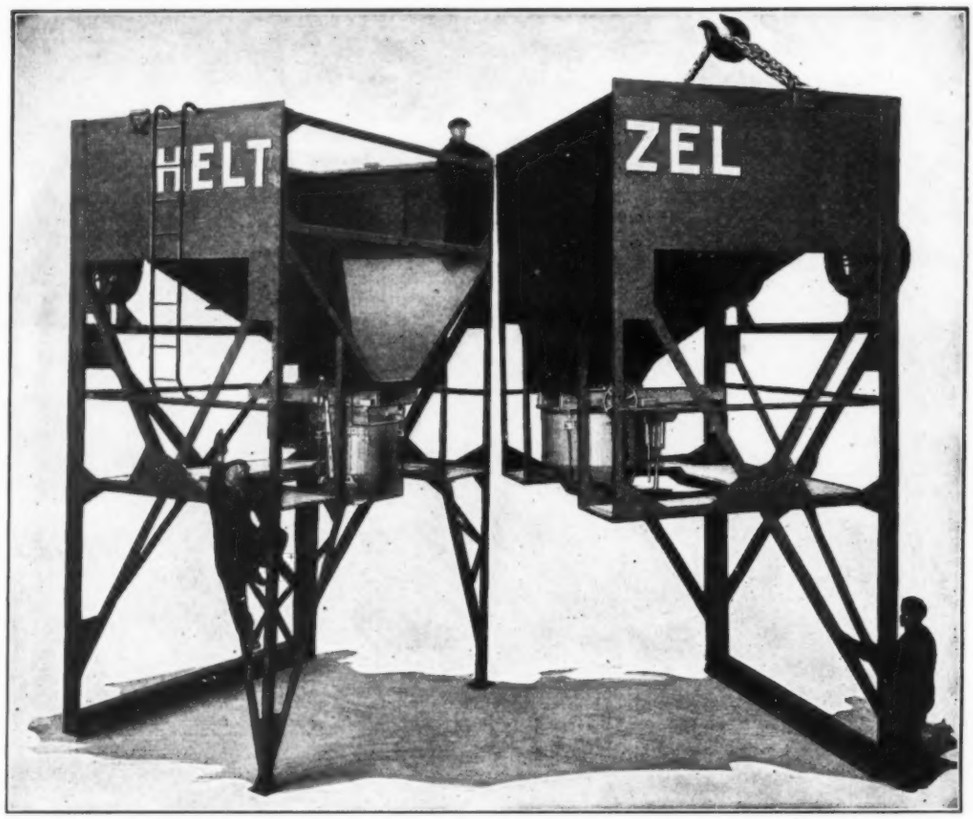

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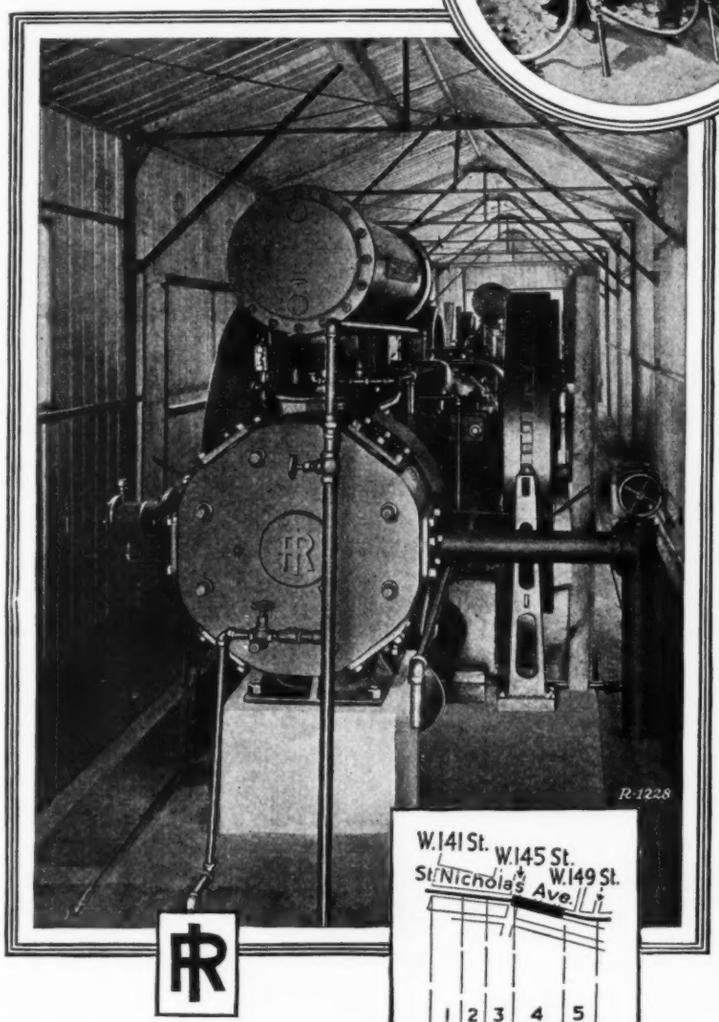
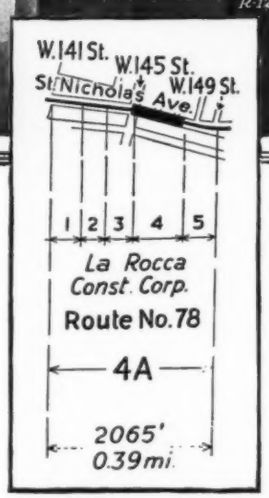


Three I-R Oil Engine Air Compressors used by La Rocca Construction Corp., New York City.



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That's what Joe Walker got with his P&H.

The P&H Crowd is effective in all positions—you can grade to 1-inch—you can rip up through top of bank—you can unearth big boulders—and all with complete, easy control.

As Mr. Walker says further: "I have used the P&H Shovel I purchased from you for eight months and I must say that I have never used a Shovel that gave more satisfaction in every way—power, climbing over heavy rough roads,—rock work."

Unit Cast Steel Construction

on New Models 400, 600, 700

P&H Gasoline Excavators—*more in use than any other make*—proven machines—have again been improved. Greater strength is provided against shocks and strains by the unit steel castings used for revolving frame, car body and side stands, and to make full use of this feature, foundry fits are not relied on—*every bearing is machined* for greater life and efficiency. Delays and money spent on maintenance are reduced.

Other features equally important from the users' standpoint are incorporated—but get the new Bulletin 61-X for the whole story.

Proven Machines—Again Improved!

The 1927 P & H Excavator with its all-steel construction from traction to boom-tip incorporates many new features which make it a greater machine than ever.

The revolving frame, the car body, the side stands, the corduroy traction frames—all these and many of the other larger parts are UNIT STEEL CASTINGS—giving rugged strength for the life of the machine. And every bearing is MACHINED to close limits.

Read about it in the booklet pictured at the right. Send for your copy today.

Proved Machines Again Improved

HARNISCHFEGER CORPORATION

Successor to

PAWLING & HARNISCHFEGER CO.

Established in 1884

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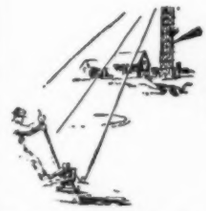
P&H SHOVELS

Gasoline Electric

Learn More About This Time and Labor Saver

Send the coupon below for more information about this little device. Handy-Andy is the pulling jack of all trades. Contractors, street repair departments, water departments, mines, oil producers, refiners, gas companies, light and power companies, drainage boards, factories, dredgers, roadbuilders—all find him a time and labor saver on many jobs.

10 to 40 Tons Line Pull. Handy-Andy is **Portable,** compact, light. Works on ratchet principle. Handier than a lifting jack. Works in close quarters. Saves tying up big, expensive equipment. Simple to operate, little to get out of order. Soon pays for itself.



Tighten Guy Lines Easily

This powerful little tool insures rigidly tight guy lines and cables on aerial tramways with a few ratchet movements of the handle.

Pulling Pipe and Closing-up Pipe Sections

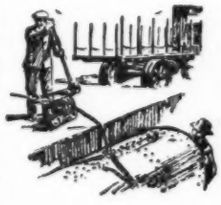
Handy-Andy is just the tool for pulling used pipe and closing up aqueduct and heavy pipe sections.

Pull Heavy Forms Quickly

Handy-Andy is a convenient, powerful, compact tool for form removal on all classes of work in crowded quarters.

Pull Trees and Small Stumps

Parks, development contractors, road builders—all find Handy Andy a money saver on this kind of work.



Move and Set Boilers

The automatic reverse on Handy-Andy makes it possible to have absolute control of heavy equipment when lowering.

Pull Sheet Piling

After the crane has gone use Handy-Andy to yank out the sheet piling. Pulls all kinds of piling.

Move Heavy Machinery

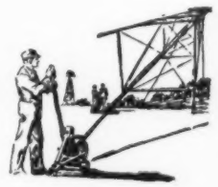
Factories, contractors and riggers find Handy-Andy an invaluable piece of equipment for this work because of its tremendous capacity.

Yank Out Stalled Trucks

Every Operator of motor fleets needs a Handy-Andy on his emergency car.

Use Handy-Andy for—

- Pulling Bridge Floors
- Setting Big Valves and Meters
- Binding Pile Clusters
- Installing Culverts
- Demolition and Wrecking
- Moving Tanks and Houses
- Sinking and Pulling Well Casing
- Loading and Unloading Heavy Machinery
- Pulling old piling
- Rerailing Rolling Stock
- Dock and Bridge Construction
- Moving Transfer Cars
- Spotting Cars Short Distances



Hoist Heavy Towers

Handy-Andy enables the operator to hoist heavy towers with perfect control over them at all times.

String Transmission Wires

An invaluable tool for tightening all kinds of lines on line construction and in overhead departments.

For Conduit Work

Because of its compact size and shape Handy-Andy can be used in inaccessible places. The tool for pulling out and replacing grounded cable.

Move Barges Easily

No need to tie up other expensive equipment moving heavy barges into slips or to unloading shovels.

Shift Track with Handy-Andy

On refuse dumps in strip mines, on railroad maintenance—one man can do the work of two or three and faster.

Manufactured by

JOHN WALDRON CORPORATION
New Brunswick, N. J.
(Est. 1827)

Reg. U. S. Patent Office

HANDY-ANDY

THE BIG LITTLE *PULLER* FOR CONTRACTORS

John Waldron Corporation, New Brunswick, N. J.

Please send me prices of Handy-Andy Pulling Jack and bulletin showing rigging.

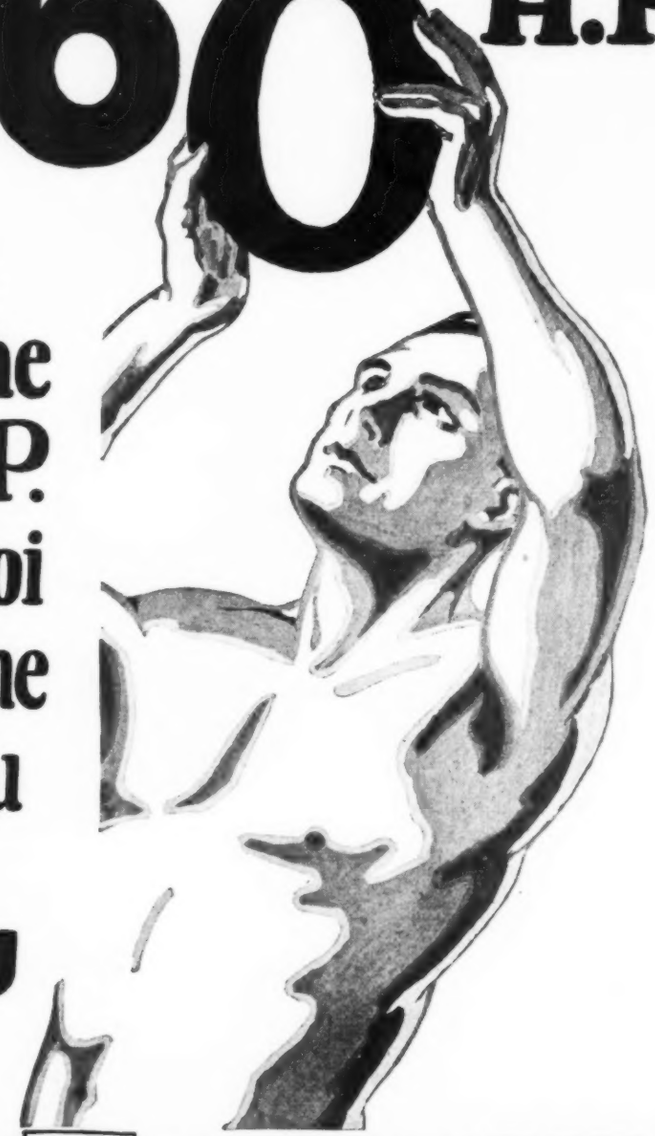
Could I use it for.....?

Name.....

Firm.....

Address.....

Now 3 to 160 H.P.



From the Small 3 to the Big 160 H.P. There is a LeRoi or Beaver Engine to Serve You

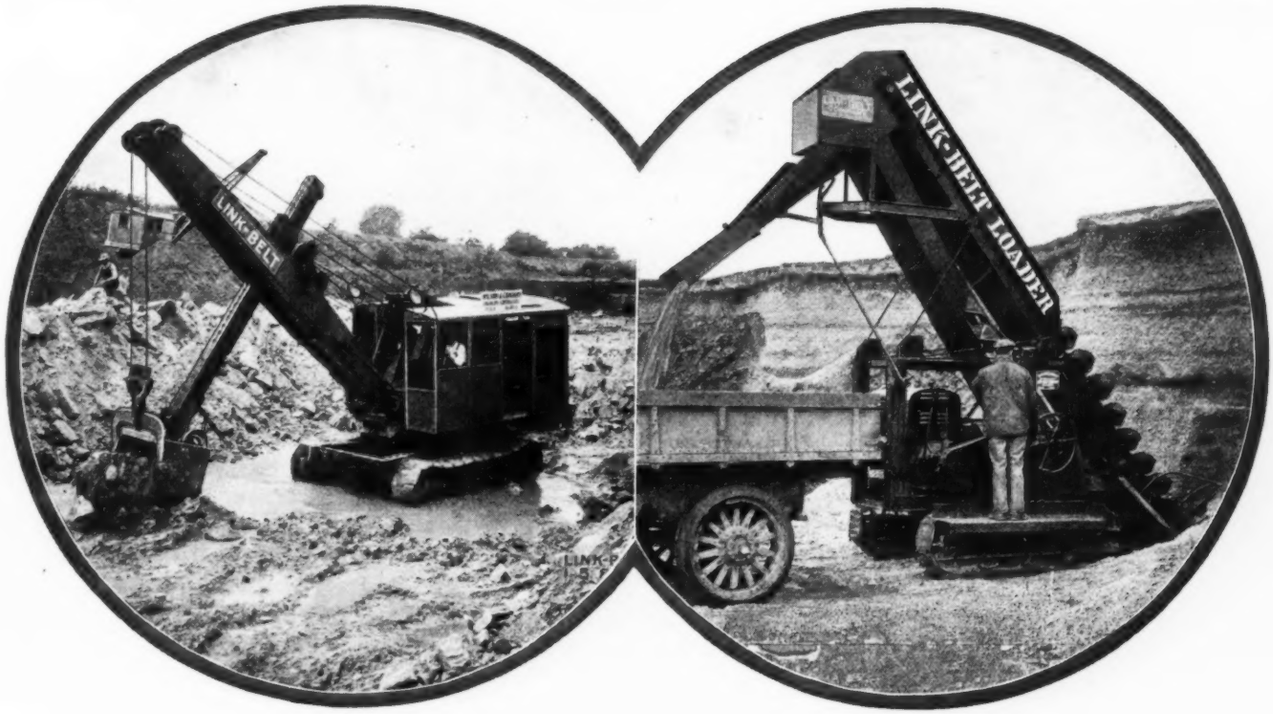
LeRoi Company

MILWAUKEE

LEROI ENGINES

NOW RANGE FROM 3 TO 160 HORSE-POWER

Twin Profit Makers



The Link-Belt SHOVEL

THE fact that the Link-Belt Shovel performs well under adverse conditions has won it an enviable recognition among contractors and industrial users.

Learn the advantages of its good design and sturdy construction—exclusive Link-Belt features that mean speed, operating convenience and reliability.

Learn of its superior performance at lower cost from Book No. 895, sent on request.

The Link-Belt GRIZZLY

CUT down truck idleness and chop a big slice off your loading costs. You can do it with a Link-Belt Grizzly—the super-capacity loader that "crawls—as it digs—as it loads".

The Grizzly is self-propelled, with plenty of reserve power. Its distinctive interrupted-screw feeder keeps the buckets heaped with pay dirt.

Get all the facts about the machine that saved more than $100.00 per day for one man—Ask for Book No. 924.

LINK-BELT COMPANY 2981

Leading Manufacturers of Elevating, Conveying, and Power Transmission Chains and Machinery

CHICAGO, 300 W. Pershing Road — **INDIANAPOLIS, 200 S. Belmont Ave.** — **PHILADELPHIA, 2045 Hunting Park Ave.**

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LINK-BELT

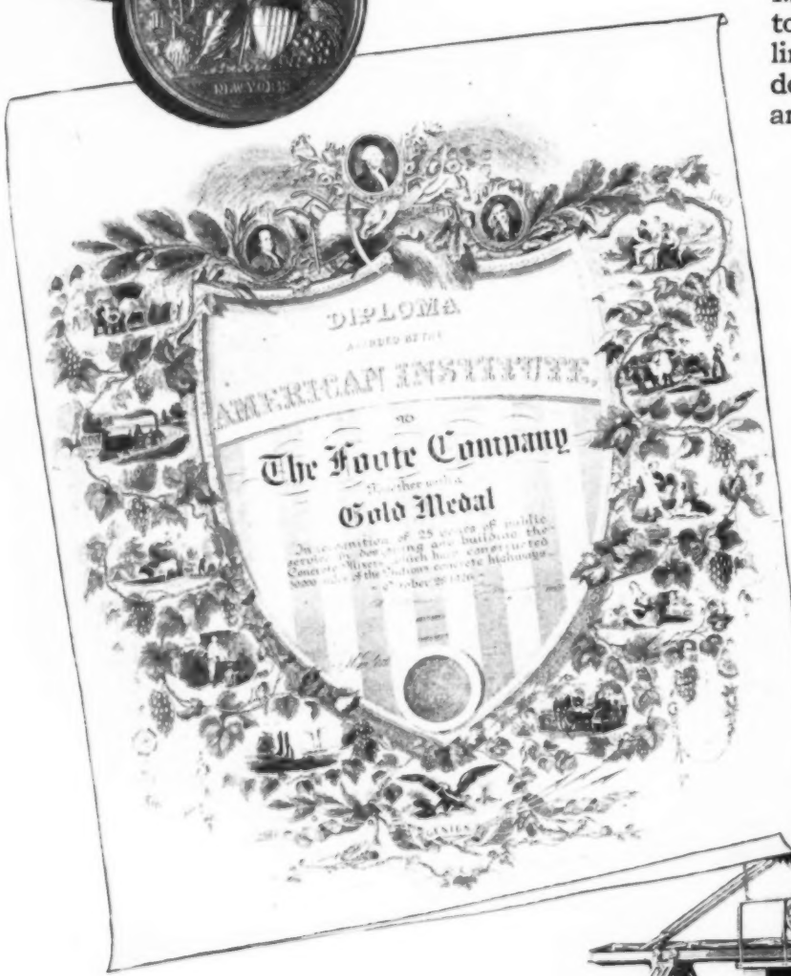
Shovels and Loaders

A Tribute to Every Road Builder

The American Institute of the City of New York was founded in 1828, nearly 100 years ago. It is recognized as the oldest scientific organization in the state and was founded with the express purpose of promoting the arts and sciences.

This is the *first* award ever made to a concern manufacturing road equipment and though the recognition is made by the institute it is paid for *by the State of New York.*

There is an interesting booklet for you that tells all about it.



At its 98th Annual Meeting, the American Institute of New York awarded a Gold Medal to The Foote Company, Inc., of Nunda, N. Y., in recognition of twenty-five years of public service.

It is significant that within the membership of the American Institute is numbered many well known engineers, past and present.

It is significant, too, that this great award has been received in the past by the Morse Electric Telegraph in 1842, McCormick Reaper in 1849, Remington Typewriter in 1873, John A. Roebling Wire Rope, 1846—all outstanding developments that played a revolutionary part in the life of man.

In such company the first Timken equipped paver, the MultiFoote 27E takes its place and to every contractor and road builder in the nation this recognition is a tribute.

MULTIFOOTE
The Paver with Timken Bearings

THE FOOTE COMPANY, Inc.
of Nunda, N. Y.
The world's largest exclusive builders of road pavers

Frank E. Hall
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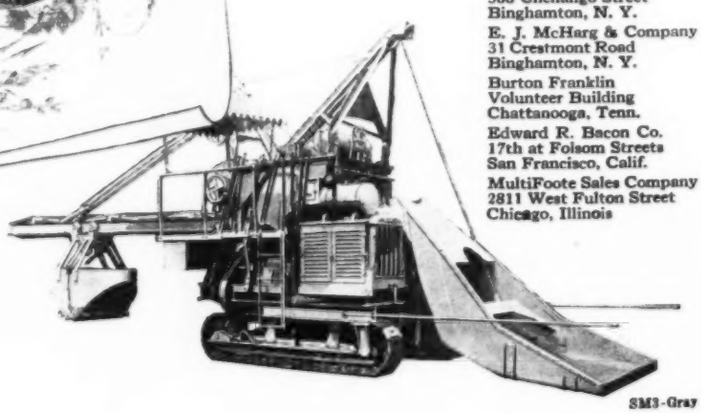

SM3-Gray

Four Type C, Two-Compartment Plants in line. One of several such installations. This type is built in capacities of 44, 57, 76, 100, and 133 cubic yards. Recommended for material yards and particularly adapted for central mixing plants.

ERIE AggreMeter

YEARS of practical experience in the design and construction of successful equipment assure satisfaction to the buyer of any of the complete line of Erie AggreMeters.

Pioneers in the field means to Erie a very real responsibility. First, to design equipment for speedy operation under conditions we thoroughly understand and appreciate. Next, to carry out that design according to the highest standards of construction. Durability to stand the load, and 100% salvage after the job are recognized features of Erie AggreMeters.

You can place your order knowing that the experimental work has been completed and paid for. The finished product is waiting for you, ready to go to work and stay working.

The new Type E AggreMeter Plant, designed for the road contractor. Furnished in capacities of 17, 22, 27, and 40 cubic yards. This plant is featured by the speed and ease with which it may be transported and erected.

ERIE Buckets

Outdig any bucket of equal weight. Due to their superior design and rugged all-steel construction Erie Buckets can be counted on to stand up under the most severe service.

THE ERIE STEEL CONSTRUCTION CO.
ERIE, PENNA.

Mail the Coupon

The Erie Steel Construction Co., Erie, Penna.

You may send me information on

☐ AggreMeter Plants for.....

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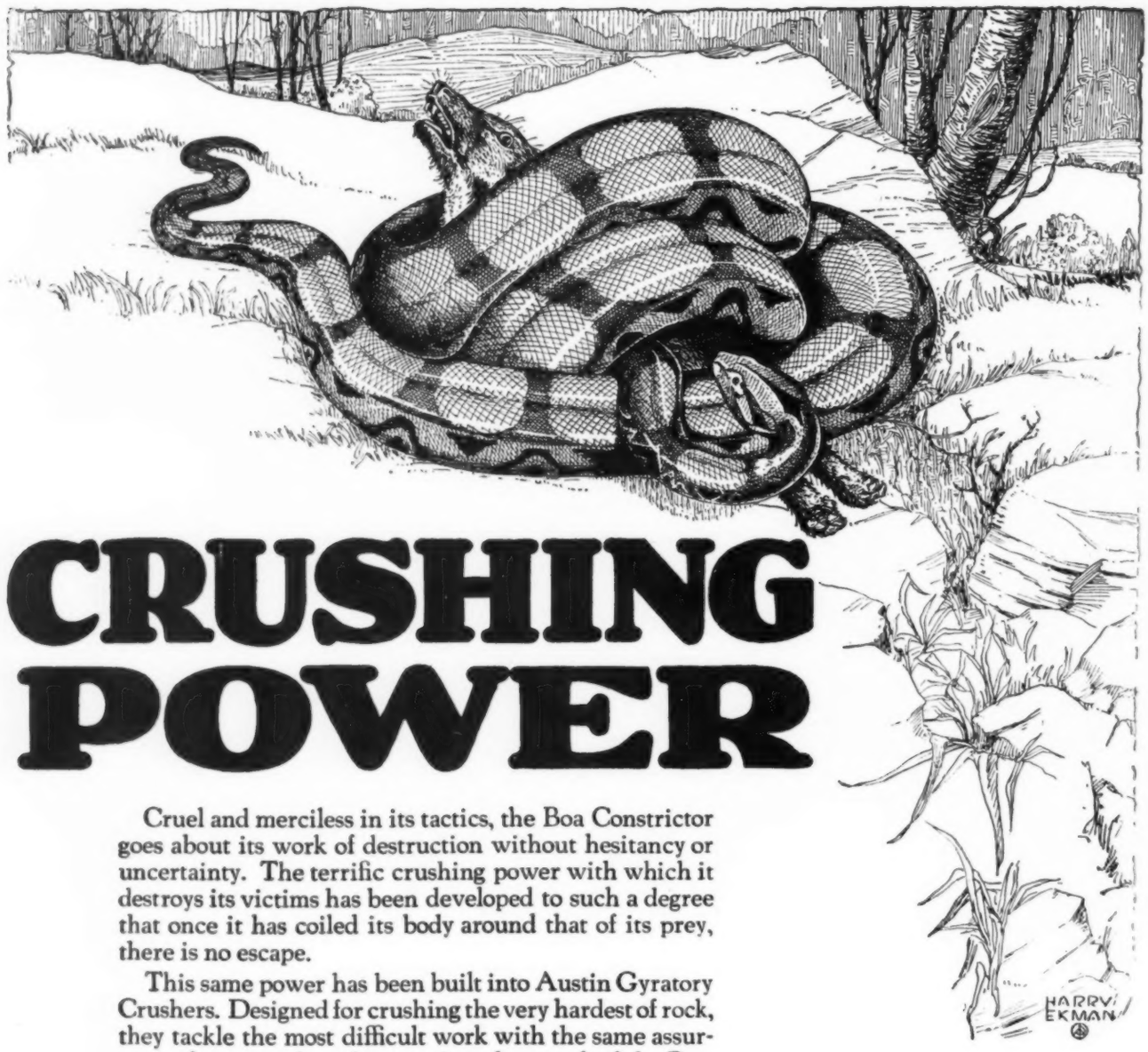
Name.....

Address.....

Town and State.....

SM 3-27



CRUSHING POWER

Cruel and merciless in its tactics, the Boa Constrictor goes about its work of destruction without hesitancy or uncertainty. The terrific crushing power with which it destroys its victims has been developed to such a degree that once it has coiled its body around that of its prey, there is no escape.

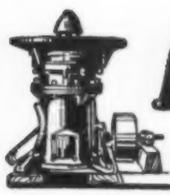
This same power has been built into Austin Gyratory Crushers. Designed for crushing the very hardest of rock, they tackle the most difficult work with the same assurance of success that characterizes the attack of the Boa.

Oversized parts where the strain is greatest, automatic lubrication, extremely large eccentrics and eccentric bearings are a few of the features responsible for the remarkable efficiency of these crushers.

The advice and assistance of expert engineers, with many years of experience in designing and constructing crushing plants, constitutes an important part of Austin service. If you can use this service, drop us a line and we will see that your problem receives our very best attention.

A special catalog describes Austin Gyratory Crushers in detail, and shows how Austin engineers have combined strength, durability, and capacity in their construction.

Write for your copy today



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ESTABLISHED 1858

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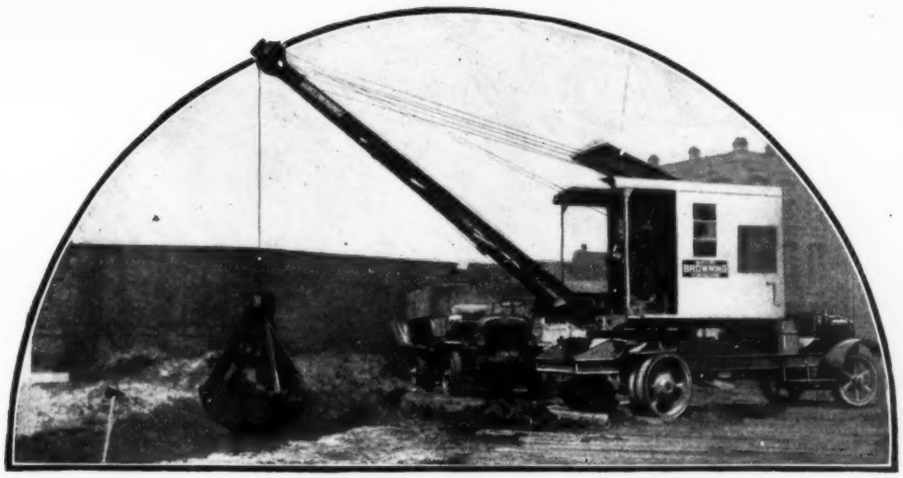

IT'S the result of 27 years crane building experience! It's as staunch as a dreadnaught and as easy to handle as the truck on which it is mounted. It's the crane with a thousand and one uses—the simplified, perfected Browning Truck Crane.

Write for complete specifications and operating data

THE BROWNING CRANE COMPANY

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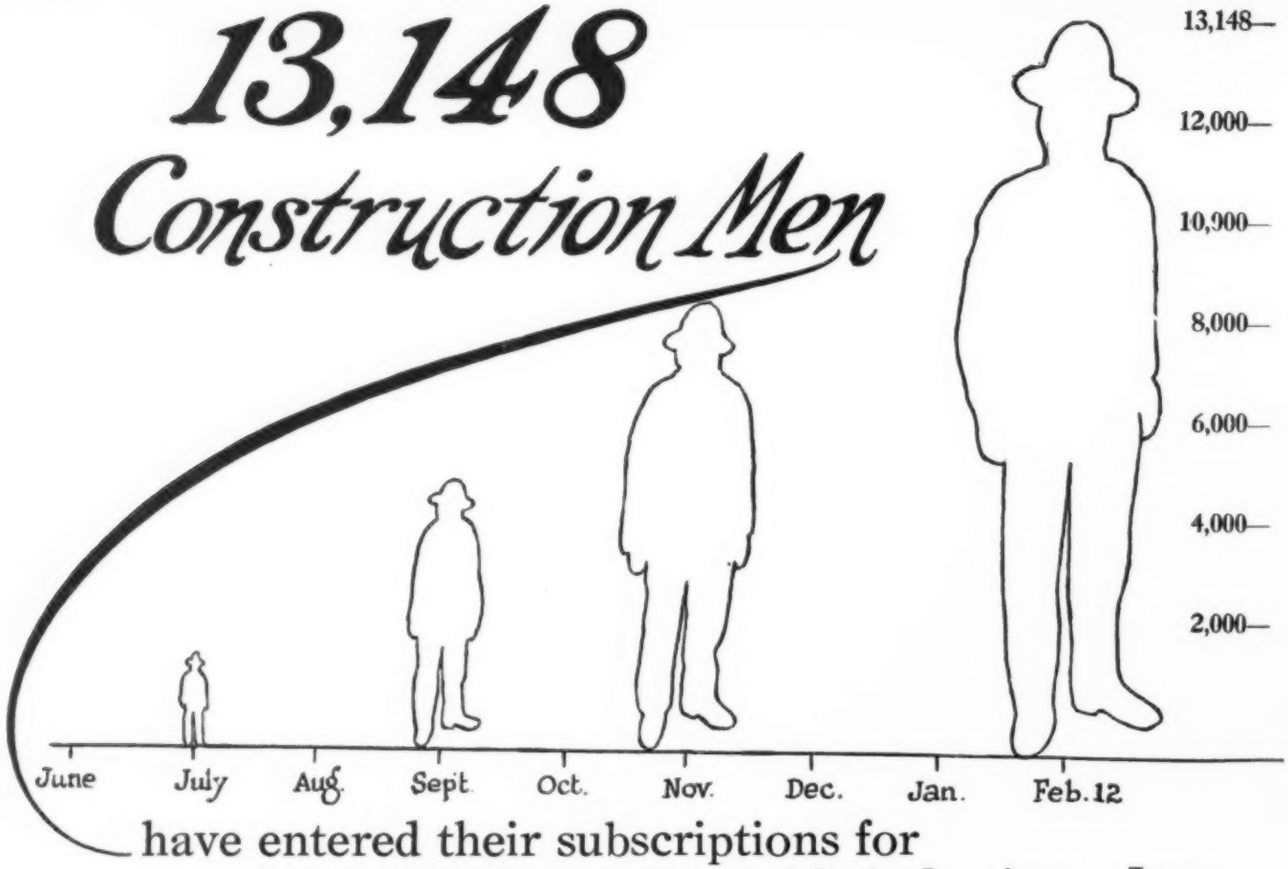
BROWNING TRUCK CRANES

13,148 Construction Men



have entered their subscriptions for *Successful Construction Methods* since June.

Today they are signing up in greater number than ever.

Who are these men? Contractors, superintendents, field engineers, and foremen working on highways, railroads, buildings, waterworks, sewage plants, industrial plants, material handling and public and private construction of every sort.

Why are they breaking all records in building the subscription list to this paper? Because *Successful Construction Methods* gives the outside man on construction work a paper designed especially to meet his needs. Look over this issue and see for yourself how—

1 It is devoted to methods and plant for handling field work of every description.

2 Its vivid pictorial treatment gets the story over quickly and effectively.

3 Its simple non-technical descriptions are boiled down to the essentials for the practical man.

4 It is equivalent to a monthly inspection trip taking you to worthwhile jobs everywhere, that you may adapt the best ideas to your own work.

5 It offers you an opportunity to show other construction men your job and your methods, with a chance to win a cash prize if you do it well.

The Field Man's Paper on Construction, Maintenance and Material-Handling

Successful Construction Methods

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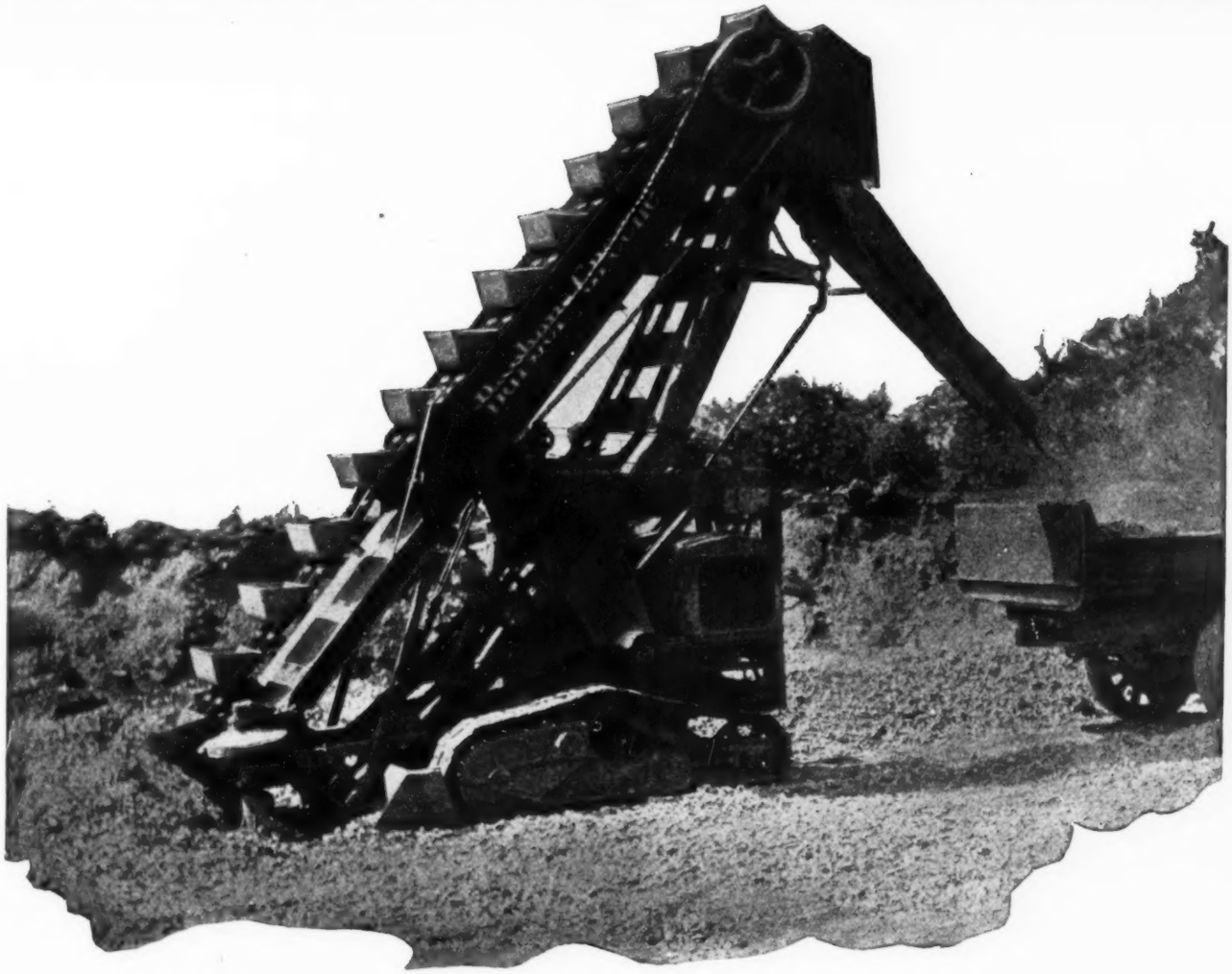
ONLY THE BARBER-GREENE HAS THE DISC-FEED AND FLOATING BOOM



Skimming the Ground

There's No Shovel Clean-up

The B-G disc-feed can be set to skim the ground—missing the dirt at the bottom of the pile—and yet digging so neatly that no shovel clean-up is necessary. And it doesn't ask the buckets to dig for their loads.

Thanks to the floating boom, the disc-feed sails smoothly over rough going, without transmitting strains to the loader chassis.

On both the "25" and the larger "42"—it means loading speed and longer life.

BARBER-GREENE COMPANY
530 W. PARK AVE. AURORA, ILLINOIS

25 Loaders 42

Barber-Greene

Barber-Greene Loaders

Representatives in 50 Citie
DISC FEED LOADERS VERTICAL BOOM DITCHERS
STANDARDIZED PORTABLE AND PERMANENT BELT CONVEYORS
SNOW LOADERS CAR UNLOADERS COAL LOADERS

Inspect 50 Loading Layouts

The ticket below entitles you to a free tour of loading jobs throughout the country through "Loading Layouts." This book contains pictures, layouts, and information on the more interesting jobs which Barber-Greene men ran across last year in every section of the country.

If you're interested in finding out what the other fellow is doing on your kind of work—send this coupon. There's no obligation.

Send for a copy today—this coupon brings it, without obligation.
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530 W. Park Ave., Aurora, Ill.

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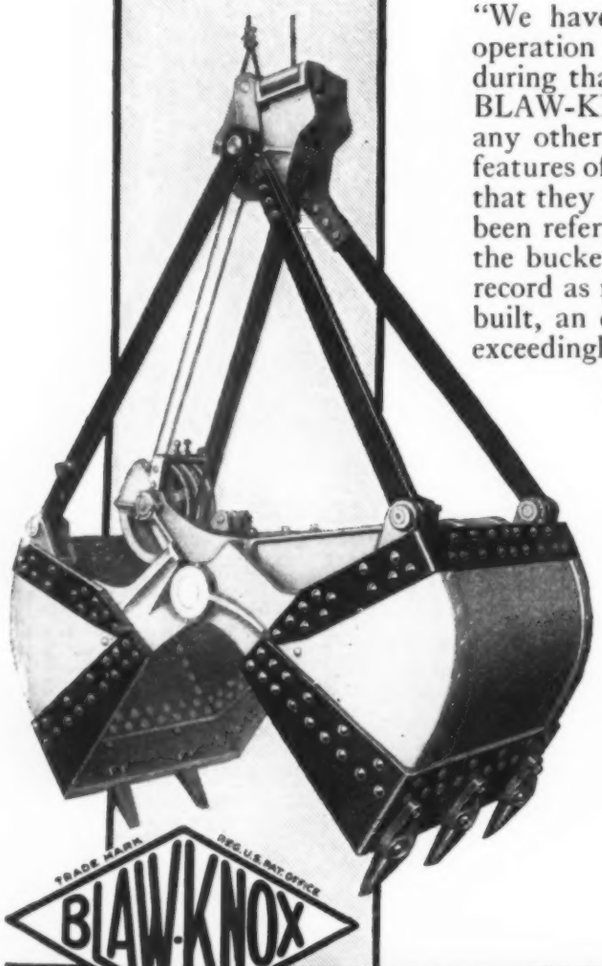
A True Story of Blaw-Knox Bucket Performance



As a result of 24 years experience

W. G. McClelland

picks the Blaw-Knox Dreadnaught Bucket as the ideal Clamshell

This is a story of bucket experience based on achievement and viewed through the eyes of one who has had almost a lifetime experience with clamshell selection and operation. We give it word for word as it came to us:

"We have had twenty-four years experience in the operation of clamshell buckets, having used many makes during that period and we can truthfully say that the BLAW-KNOX Bucket comes nearer the ideal than any other bucket we have used. There are so many features of improvement in this bucket over the average that they would be too numerous to mention. We have been referred to in several instances for our opinion on the bucket for local use and we have put ourselves on record as recommending it in every way. It is honestly built, an excellent digger and the maintenance cost is exceedingly low."

W. G. McClelland, Secretary-Treasurer
Sand and Supplies, Ltd.
Toronto, Canada

While BLAW-KNOX is constantly making new friends, the bulk of our bucket business comes from old customers. This is an important fact for you to consider.

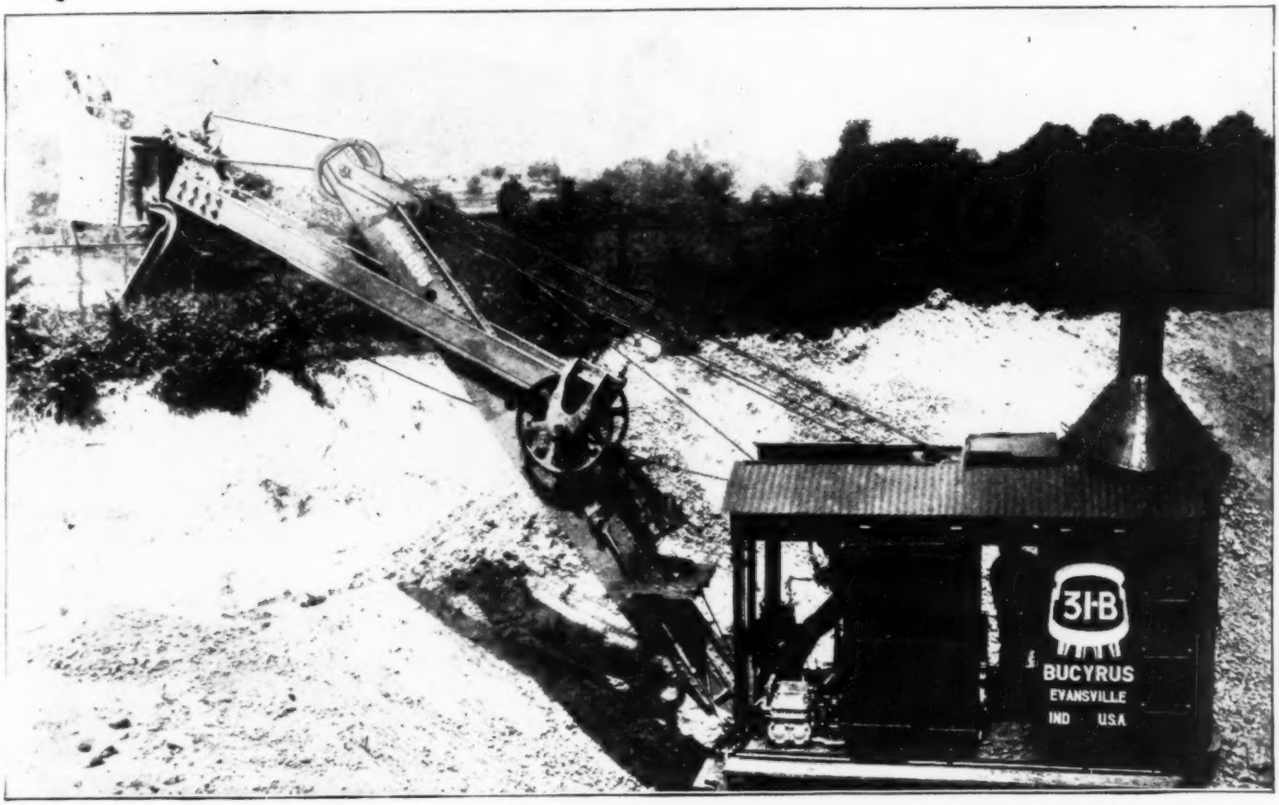
SEND FOR A BLAW-KNOX BUCKET CATALOG AND SEE FOR YOURSELF THE FEATURES OF IMPROVEMENT REFERRED TO IN MR. McCLELLAND'S LETTER.

BLAW-KNOX COMPANY
686 Farmers Bank Building
Pittsburgh, Pa.

New York Baltimore Philadelphia Chicago
Detroit Birmingham Buffalo Cleveland

BLAW-KNOX

If you want to move the dirt see this 1-yard Bucyrus



— with the high speed digging cycle

Operating speed is the difference between little jobs and big jobs — between breaking even and making profit and between ordinary shovels and Bucyrus.

The box girder boom and lighter counterweight permit the dipper to swing faster—the two part hoist hoists the loaded dipper faster.

One new 31-B loaded out as high as 42 truck loads per hour

The 31-B swings the loaded dipper faster — and hoists loaded dipper to dumping position faster.

31-B
41-B 50-B
Convertible To
DRAGLINE or CRANE

—at the rate of 5 dippers full to each truck—on a basement job.

Moving the dirt on a paying basis is just what this new 1-yard Bucyrus is built for—faster swinging, faster hoisting and faster operating—greater yardages per day at a lower cost—and many years of hard work.

Wouldn't you like to look over a shovel like this? Send for the new C-311-2 bulletin—a post card brings it.

BUCYRUS COMPANY, South Milwaukee, Wisconsin

BUCYRUS

765

NEW YORK CHICAGO BIRMINGHAM SAN FRANCISCO PITTSBURGH TOKYO LONDON

EASTON ROLLOVER BODIES

To successfully haul sticky clay or wet soggy materials the body should dump to a sixty degree angle. Easton Rollovers have that feature. Also they are rugged, all steel, and operate automatic.

You'll find them around cement plants, brick yards and at work on state highways.

Ford sizes 1 or 1¼ cubic yards $90.00 f.o.b. Easton.

Quotations on sizes for other make trucks supplied upon request.

EASTON CAR AND CONSTRUCTION CO.

Main Office and Works: Easton, Pa.

PLYMOUTHS used in Railroad Construction

S. S. SWASEY PRES-TREAS. | R. E. THORP 1ST. VICE-PRES. | C. C. LAZIER 2ND. VICE-PRES. | A. M. SWASEY SECRETARY

THE INDUSTRIAL HAULAGE CORPORATION
CONTRACTORS AND ENGINEERS
ST AUGUSTINE, FLORIDA
Oct. 14, 1926

The Fate-Root-Heath Company
Plymouth, Ohio

Gentlemen:

Believing they will be of interest to you, we are sending you three photographs showing our eight-ton, standard gage PLYMOUTH GASOLINE LOCOMOTIVE at work in the construction of the Florida East Coast Railway Company yards at Fort Pierce, Florida.

Since the middle of last June we have handled approximately 115,000 yards on an average one-mile haul, besides operating the spreader and switching material cars. This locomotive has continuously handled in high gear six standard dump cars containing forty-five cubic yards of sand. During this time the locomotive has done all that it has been asked to do and has not caused us one moment's delay.

The successful operation of this locomotive is responsible for our purchasing three additional eight-ton PLYMOUTH GASOLINE LOCOMOTIVES for our road work in Madison County Florida.

You may feel free in referring prospective users to us or to our Superintendents on the work.

Yours very truly,

THE INDUSTRIAL HAULAGE CORPORATION

SSS:LT

S. S. Swasey

In railroad construction work the Plymouth Gasoline Locomotive is the ideal haulage unit.

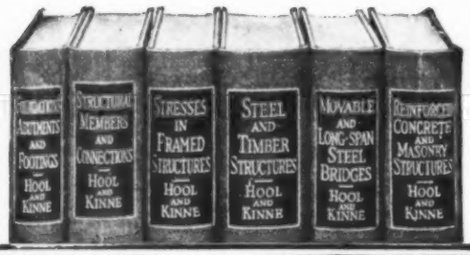
Down in Florida an 8 ton Plymouth played a prominent part in the construction of the Florida East Coast Railway Company's yards at Fort Pierce.

So successful was the performance, the Industrial Haulage Corporation has since bought three more Plymouths for highway construction in northern Florida.

Repeat orders tell the story. When shall we ship YOURS?

Plymouth Locomotive Works
(The Fate-Root-Heath Co.)
PLYMOUTH, OHIO

PLYMOUTH
Gasoline Locomotives



$34.50 worth of books for $27.50 payable in convenient monthly installments

Indispensable to you!

Every man concerned with the design and construction of civil engineering structures of any type should have these practical books with their helpful tables, diagrams, reference data, best methods and details.

Every one of the six voumes is jammed to the covers with sound practical information drawn from the records of actual practice.

Every one is the work of a large staff of well-known specialists.

The six books offer you not only a definite step-by-step library of structural engineering methods, but also handbook information covering these methods.

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Small monthly payments

The Hool and Kinne books have received enthusiastic praise from engineers, architects, draftsmen and builders all over the country. They are in use as texts in the leading engineering colleges. They form the greatest collection of structural engineering data ever published. Here is an opportunity to secure them at a special low price and on small monthly payments, and on this great free offer—while it lasts.

See it free

Send the coupon and see these books for 10 days free. If they do not seem to be worth many times the 14 cents a day they cost, send them back.

FREE

The book presents step-by-step examples of methods on typical steel erection jobs. Special attention is given to erection of bridges under full traffic conditions.

A book of daily value to you—a book you would never expect to get FREE—yet, here it is, FREE to you if you get your Hool and Kinne set now instead of waiting until later on. Act! Don't miss this offer!

—if you act Now

Mail this coupon now.

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S.M.3-1-27

Breaking all records!

The "Cleveland" C6 Paving Breaker is acclaimed by all users as a "wonderful machine." Contractors are making remarkable records with it. The saving in time and labor over hand methods is astonishing.

Just see what you can do with it in ripping up City pavement and hard roads, and on other "demolition work."

Bulletin No. C6A describes the Paving Breaker and other "Cleveland" Air Tools.

The CLEVELAND ROCK DRILL CO.
3734 East 38th Street, Cleveland, Ohio

Cleveland Air Tools:

Paving Breakers
Sinkers
Clay Diggers
Back-Fill Tampers
Calking Tools

CLEVELAND ROCK DRILLS

"Impossible to use Steam Shovels"

2 Bear Cats did the job!

FRED H. PARRY, Kingston, Pa., is another owner who has found that the Bear Cat will work where other machines are useless.

The excavation of a channel for the Spring Brook Water Supply Company consisted of about 17000 cubic yards, 7000 of which was solid rock, requiring blasting. Owing to the narrowness of the channel at the bottom it was impossible to use steam shovels.

Mr. Parry used two Bear Cats equipped with Ditcher Attachments. The Bear Cats were kept on top at all times. Earth was cast to the sides and rock hauled away in trucks to the spoil bank.

It looked like a big job for any machine, but as usual the Bear Cat justified its name and accomplished what other and larger machines could not do.

For trench work of any kind, also for excavating basements, etc. where the machine has to work from the bank, the Bear Cat Ditcher is a wonderful proposition—fast, economical, dependable, sure-footed. One man operation. Interchangeable attachments.

Send for the new Bear Cat Book.

THE BYERS MACHINE CO., Ravenna, Ohio

Builders also of Byers Truckrane

Sales and Service Throughout the Country

The Byers Machine Co., Ravenna, O.

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Please send a copy of the new Bear Cat Book. The kind of work we are particularly interested in is.....

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S.M. 3-27

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THE ALL-PURPOSE ONE MAN CRANE-SHOVEL

"Schramm" Multi-Cylinder Engine Driven

Compressors

Built in four sizes with displacements of 60, 120, 180 and 240 cubic feet. With exception of 60-foot size all are mounted on one piece cast steel frame. Other features are a heavy duty flexible clutch which permits starting of engine separate from compressor, and a slow down governor which automatically cuts the engine speed to a minimum as soon as the compressor unloads.

Schramm Inc., *Manufacturers*

West Chester, Penna.

Offices and representatives in all principal cities.

SAFETY IN UNDERPINNING

Is assured by use of

Watson-Stillman Independent Pump Hydraulic Jacks

Accurate—Dependable—Easy to Repair

These Jacks are being used extensively by Underpinning and Foundation Contractors for underpinning work, sinking piles under foundations and making tests of footings.

The pump, being independent, can be operated at a safe distance from the load and in a convenient position. For forcing and pressing work, it can be used in connection with your own framework. For extra heavy work, several jacks may be used with one pump or from an accumulator.

We make a full line of other types of jacks, and also many hydraulic devices suitable to the contractor's needs, such as benders, shears, pumps, punches, valves, etc.

Write for catalogs.

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Photo by courtesy of Spencer-White and Prentis.

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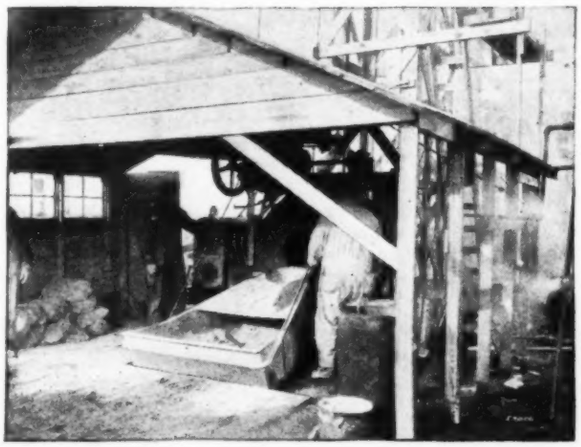


Smith 10-S Non-Tilting Mixer used by the Stevens Engineering Co., St. Louis, in erecting concrete Elevators for the Kurth Malting Co., Milwaukee. Large diameter drum of narrow width permits swinging the discharge chute well into the mixer and allows the use of deeper discharge buckets—Complete discharge in six to eight seconds!

EVERY time you have a concrete job calling for those proportions think of the Smith 10-S.

Both the Tilting and Non-Tilting Smith's of 10-S capacity are specially designed to speed up 1-2-4 work. Its two-bag batch capacity on these proportions gives double the output of the 5-S while its compact construction makes it as easily handled as the smaller units.

Here's lower cost per yard that means more profit.

The Smith Trademark on a mixer means faster work, less labor, more profit. It stands for ease of handling, quick mixing, perfect mixing, and a maximum speed of discharge. It stands for the studied simplicity of design, the compact and rugged construction that has won an ever growing popularity for Smiths among contractors the world around.

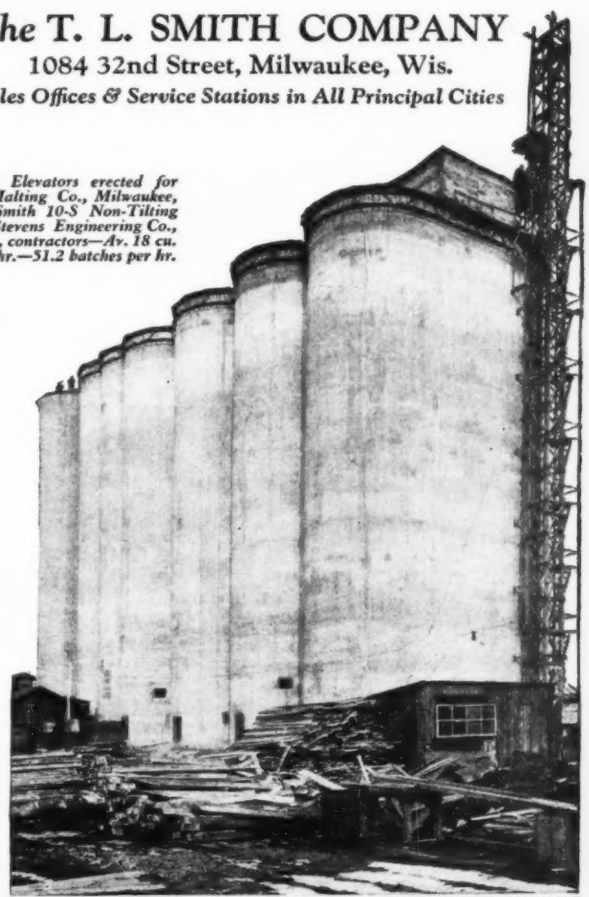
The Smith 10-S Tilting Mixer is a typical example from this famous line. It is shown here equipped with power loader and water tank. This mixer is extremely fast, discharging a two-bag batch up to 1-2½-4 proportions in 8 seconds. 100 to 150 cu. yds. per day.

The new Smith Catalog covers the field with specific and interesting data that should be in every contractor's hands. It goes into detail on both Tilting and Non-Tilting Mixers from the 2½-S ("Mascot") size to the 112-S—the largest mixer in the world. Unusual modern jobs are illustrated and described. Get it!

Send for Catalog No. 526

The T. L. SMITH COMPANY
1084 32nd Street, Milwaukee, Wis.
Sales Offices & Service Stations in All Principal Cities

Concrete Elevators erected for Kurth Malting Co., Milwaukee, with a Smith 10-S Non-Tilting Mixer—Stevens Engineering Co., St. Louis, contractors—Av. 18 cu. yds. per hr.—51.2 batches per hr.



SMITH MIXERS

When the Budget Compels $1 to do the Work of $2

The increased cost of production, caused by trucking over rough floors, is a matter of grave concern to those charged with plant maintenance. The maintenance budget does not always permit the laying of new floors.

When our 1.2.3. Hydro-Proof Floor Resurfacer was presented to the industrial world, the problem of floor resurfacing was solved. Hundreds of America's leading industries have already saved tens of thousands of dollars by the Hydro-Proof process. They have found in Hydro-Proof a method for resurfacing floors that is permanent, economical and convenient.

Whether your present floors are concrete, brick, asphalt or wood, the Hydro-Proof method will permanently resurface them, at less than one-half the cost of other methods. Hydro-Proofed floors give a longer wearing surface than new floors, and are dustless, water, acid, alkali and spark proof. They reduce trucking expenses to the minimum. Their resiliency greatly lessens industrial fatigue, and increases to the maximum, your employees' efficiency.

Let us show you how we can materially reduce your production expense, by sending you working samples of our 1.2.3. Hydro-Proof Floor Resurfacer, without expense or obligation to you.

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704 Free St., Syracuse, N. Y.

You may send me working samples of HYDRO-PROOF. I understand this is to be sent me free of charge and without placing me under any obligations.

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Getting Better Acquainted
with the

LOWELL
Reversible Ratchet Wrench

A WRENCH FOR EVERY PURPOSE
A SIZE FOR EVERY NEED

The 1916 Pattern

No.	Length of Handle	Size of Opening, Inches	
		Square	Hexagon
0	7″	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$	$\frac{1}{2}$, $\frac{19}{32}$
1	10″	$\frac{3}{8}$ taper, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$	$\frac{19}{32}$, $\frac{11}{16}$, $\frac{25}{32}$
2	12″	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$	$\frac{11}{16}$, $\frac{25}{32}$, $\frac{7}{8}$, $\frac{31}{32}$
3	15″	$\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$, $\frac{13}{16}$, $\frac{7}{8}$, $\frac{31}{32}$, 1, $1\frac{1}{16}$, $1\frac{1}{8}$	$\frac{31}{32}$, $1\frac{1}{16}$, $1\frac{1}{8}$, $1\frac{1}{4}$
$3\frac{1}{2}$	18″	$\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$, $\frac{13}{16}$, $\frac{7}{8}$, $\frac{31}{32}$, 1, $1\frac{1}{16}$, $1\frac{1}{8}$	$\frac{31}{32}$, $1\frac{1}{16}$, $1\frac{1}{8}$, $1\frac{1}{4}$
4	18″	1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{7}{16}$, $1\frac{1}{2}$	$1\frac{1}{16}$, $1\frac{1}{4}$, $1\frac{7}{16}$, $1\frac{5}{8}$, $1\frac{13}{16}$
$4\frac{1}{2}$	24″	1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{7}{16}$ $1\frac{1}{2}$	$1\frac{1}{16}$, $1\frac{1}{4}$, $1\frac{7}{16}$, $1\frac{5}{8}$, $1\frac{13}{16}$

Reversible—works either way. A simple twist of the knurl at the **end of the handle** does the trick.

Ample contact between Pawl and Gear. Faces of Pawls range from 3/32-in. x 7/16-in. in smallest size to 3/16-in. x ¾-in. in the largest.

The harder the pull, the more firmly Pawl is seated.

Long life, all mechanism enclosed against dirt.

Finished all over and polished in the natural metal.

Capacity in the different sizes ranges from ¼-in. to 1½-in. in square opening and ½-in. to 1 13/16-in. in the hexagon opening.

Length of handle appropriate to the capacity.

Capacities beyond the above are handled by the Bridge Builders Pattern below to which we introduce you next month.

LOWELL
WRENCH CO.

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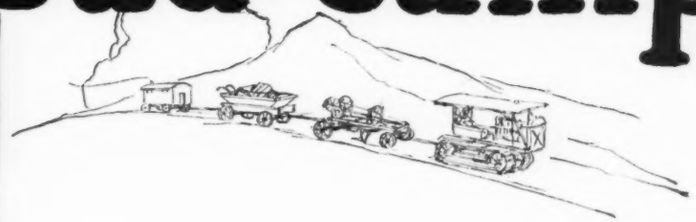
Ask for Catalog M
and Get the Complete Story

The Traveling Road Camp



Slides block the road . . . or washouts threaten an isolated highway! Quickly, a "Caterpillar" track-type tractor takes men and heavy equipment to the scene.

In less time than it takes to establish a branch camp, the work is done and the crew and equipment back at headquarters!

Many small but important maintenance jobs, that might otherwise be delayed, are completed promptly and economically because of "Caterpillar" power, traction and dependability. Road officials are rewarded by the gratitude of motorists and tax-payers!

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2-TON . . . $1850
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BEST C. L. Best Tractor Co. The Holt Manufacturing Co. HOLT

There is a "Caterpillar" Dealer Near You

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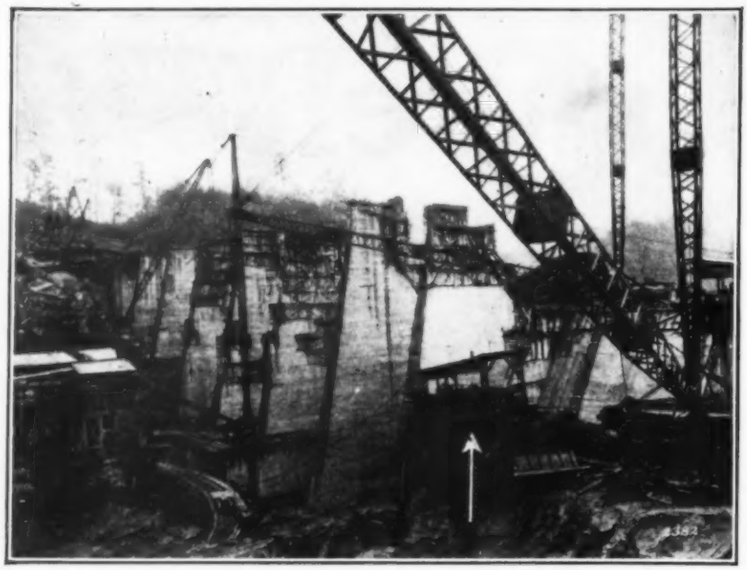

Every hoist used on the Cherokee Bluffs Dams is a LIDGERWOOD Electric.

This is only one of many large operations on which they are used.

They are equally valuable on small works.

LIDGERWOOD

ELECTRIC
GASOLINE
STEAM

HOISTS

DERRICKS—CABLEWAYS

Combine Power that speeds the work

With Strength that saves time lost in breakdowns

On both large and small construction jobs these qualities Increase your profits

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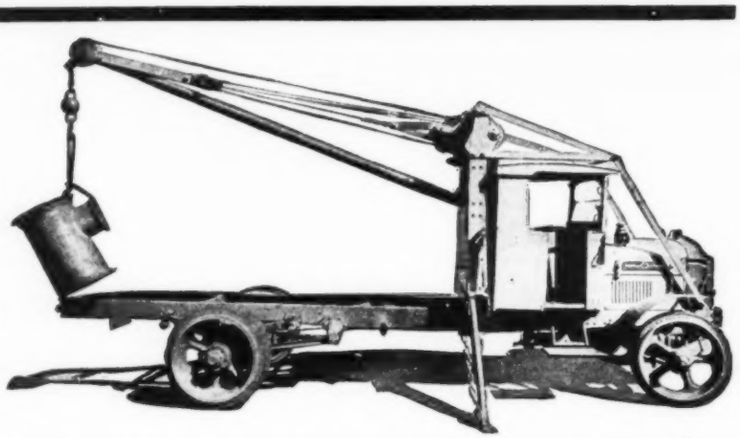
AUTO TRUCK DERRICK

HOISTS--LOADS--DIGS



CONVERT your truck into a TIME and LABOR saver with this derrick. It will serve many purposes if mounted on a chassis of sufficient tonnage.

With HOOK or CHAINS, it lifts pipes, girders and other solid objects. With LAZY TONGS it handles barrels, bales, boxes, crates, etc. With CLAM SHELL or ORANGE PEEL bucket it loads stone, gravel, sand, coal and other soft or loose material.

ONE OPERATOR standing on truck has absolute control over the load and its placement.

The construction of this derrick is such that it can be knocked down, packed compactly and shipped anywhere. Derrick has large factor of safety over specified capacity. Protection from breakage due to overload is insured by patented slipping clutch set to lift slightly in excess of rated capacity.

Operation of clam or orange peel bucket is simple, any unskilled workman can operate this machine and it will also do the work of vertical hoists on trucks for raising and lowering body.

Prices and fuller details will be sent on request. Certain territory still available for first class Distributors. Correspondence invited.

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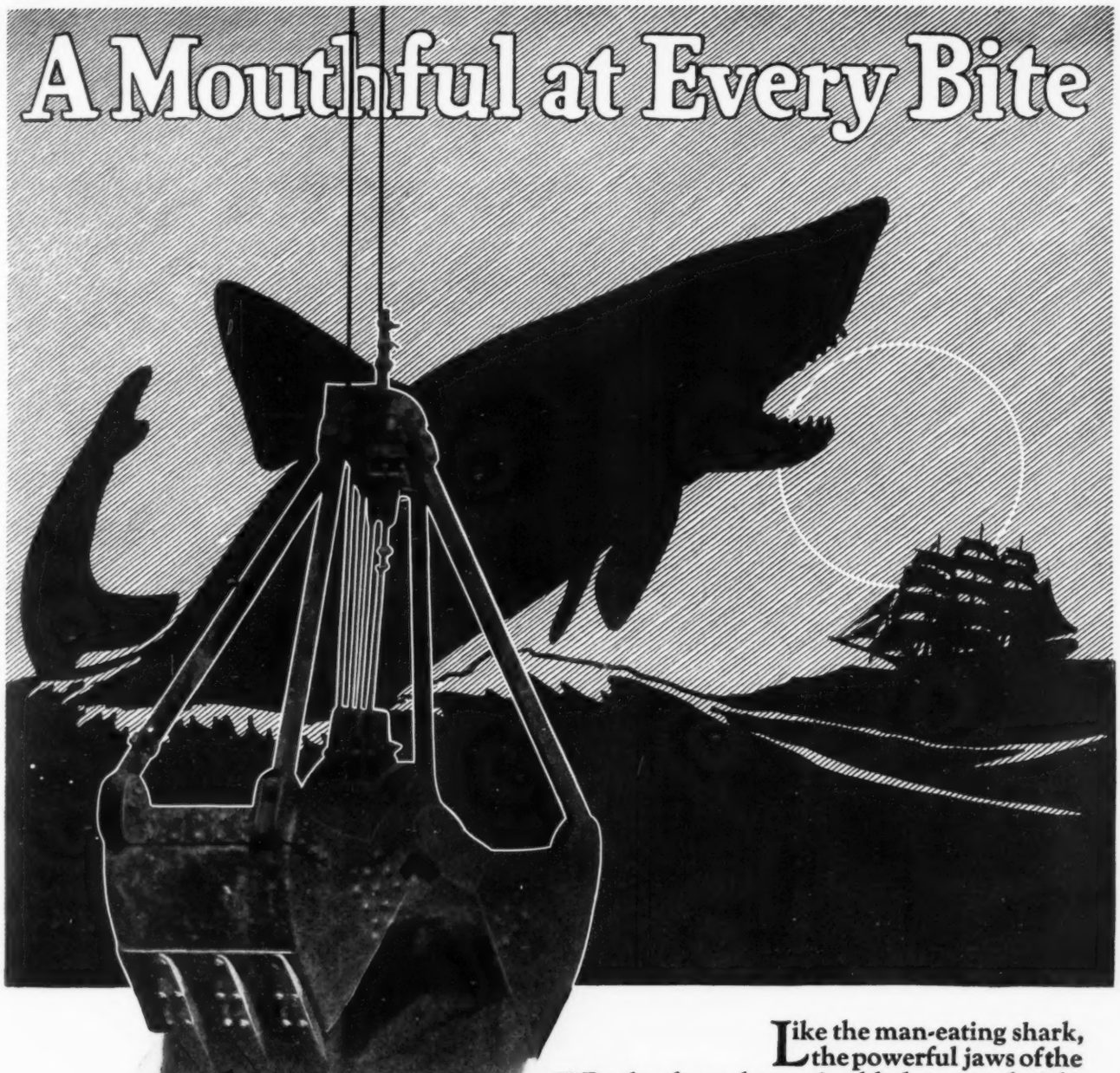
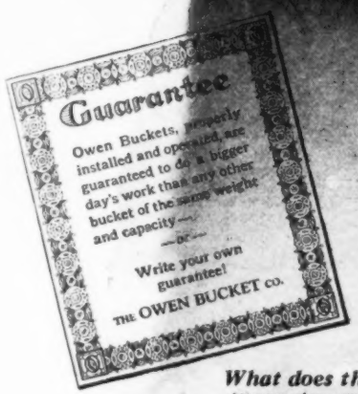
Also ATIA Ash and Garbage Removal Bodies

A Mouthful at Every Bite





What does the above guarantee mean? It means satisfaction assured.

Like the man-eating shark, the powerful jaws of the Owen Type "J" Bucket force the cutting blades or teeth right through the material and get "A mouthful at every bite."

Patent design insures a good start with the jaws imbedded in the material. Concentrated weight anchors an Owen to the ground; and the block and tackle pull the head down with a tremendous push on the jaws, creating real penetrating digging power.

No matter what your requirements are . . . how special or how general . . . there's an Owen Bucket which will meet them better than any other. Write for details.

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CLEVELAND, OHIO

OWEN CLAMSHELL BUCKETS INSURE A BIGGER DAY'S WORK

Owen Buckets

PULLMCO

THE ONLY PULLER

Having all features a puller should have

2 levers low fulcrums brake

All steel wide wheels smooth drum

A PORTABLE POWER PLANT

For Road, Sewer, Dock, Bridge and other construction, Car Spotting, Wrecking, House Moving, Land Clearing and Material Handling.

Anchors by hook or cable. Works in any position.

Simple as a Lifting Jack

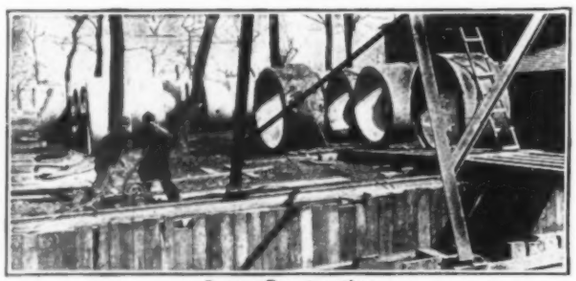
SPEED	PER MIN.	DRAW BAR PULL	
1st	3½ Ft.	9 to 12 Tons	WITH LEVERS
2nd	6½ Ft.	2 to 9 Tons	
3rd	11 Ft.	1 to 2 Tons	
4th	33 Ft.	0 to 1 Ton	
5th	65 Ft.	Ratio 6½ to 1	WITH CRANKS
6th	85 Ft.	Ratio 3½ to 1	

Pull Can Be Increased to 100 Tons With 4 Tackle Blocks

The Puller that will do the job in the shortest time.

WHY? It can be pulled from place to place like a cart. Speed can be changed instantly to suit load. Brake (capacity 1,000 lbs.) can be used to slacken cable.

SPEED COUNTS



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Car Spotting

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Describe Your Problem. It Will Help Us to Help You.

PULLER MANUFACTURING CO.

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To Fill Any Form

The Stuebner Controllable Concrete Bucket with its patented device for regulating the width of discharge opening is extremely useful when you are filling narrow or inconveniently located forms.

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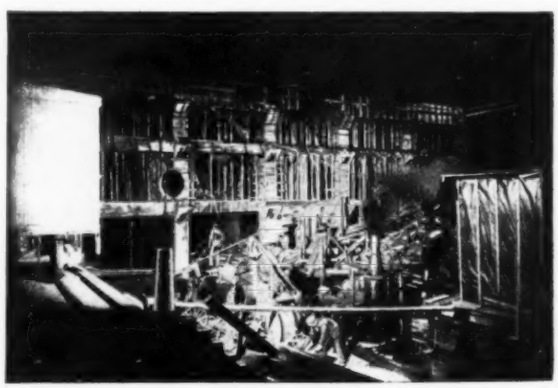

All Carbic Lights use as fuel—Carbic Cakes—compressed forms of high grade calcium carbide. These cakes insure a clear, white, penetrating light throughout the entire night.

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CARBIC MANUFACTURING CO.

NEW YORK — DULUTH, MINN. — CHICAGO

GENERAL OFFICE

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The *SIMPLICITY* of WONDER design has revolutionized the Mixer Industry

The Original Single Opening Tilting Mixer

FOR YEARS non-tilting design attempted to compete with the efficient simplicity of **WONDER** design in the half-bag size. Today the half-bag non-tilter is obsolete. Today the popular one-bag 5-S tilter is also dominating. Today the larger job contractor is increasingly demanding tilter efficiency and simplicity in all larger sizes up to and including 14 cu. ft. capacity.

WONDER has full confidence in the Single Opening Tilting Principle. **WONDER** believes if the same functions of a concrete mixer can be performed better with one-third of the moving-wearing parts necessary in the non-tilter design, that the tilter will eventually dominate in all the sizes.

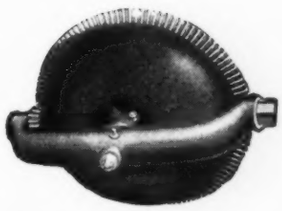
Our 1927 Catalog covering **WONDER** Mixers in sizes 3, 3½, 5, 7, 10 and 14 cu. ft. mixed concrete per batch, covers the only exclusive, complete line of Single Opening Tilting Mixers in the industry. It is yours for the asking.

Construction Machinery Co.

Nationally Distributed from Convenient Points

403 Vinton Ave., Waterloo, Iowa

7 out of 10 leading mixer manufacturers are now building TILTERS around the fundamental WONDER design



WONDER

The Original Single Opening Tilting Mixer

—When in New York—

Do Not Fail To Visit The
FORD POWER EQUIPMENT EXPOSITION

Here under one roof is an interesting display of over 200 exhibits of industrial, agricultural and commercial units, built to operate with the Fordson tractor and Ford chassis.

This exhibit occupies two entire floors of the Ford Building at 1710 Broadway. Nowhere else is it possible to quickly and conveniently see all the equipment for use with Ford units.

If you use power in your business you will see much to interest you. Ford equipment means economy. Come today—and see this exhibit.

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The following are a few of the groups of equipment that can be seen on display:

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POWER EQUIPMENT EXPOSITION

Ford Motor Building **54th Street and Broadway, New York**

New!!

As a combination *Level and Transit* with the *simple* and *easy* method of changing from one to the other—in workmanship and in price—

The Improved Loxo Compound Level as a Transit

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—is unequalled and unsurpassed in value.

Two Service—Double Duty—One Price

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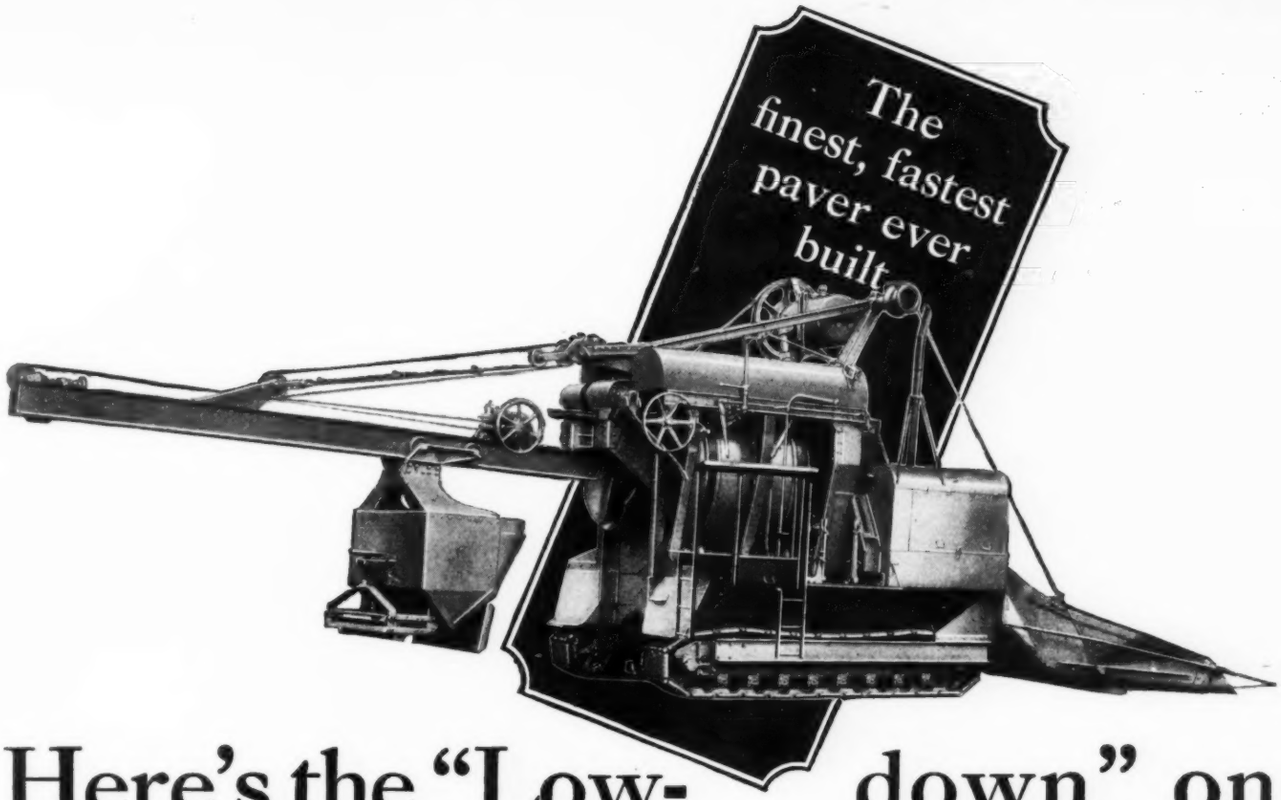

Here's the "Low- down" on Paving Mixers

From the contractor's point of view the New Rex 27-E is truly *The Finest, Fastest Paver Ever Built.* See if any other paver can give what the Rex does.

* * *

At the Road Show one or more Pavers had these features in common with Rex

Timken bearings—Power-operated discharge—Three-point suspension—Automotive clutches—24" drum openings—High-pressure lubrication—Heat-treated discharge chute.

***But Only the Rex had all those features* plus these:**

Fully enclosed speed reduction running in oil, mounted with the engine as one single complete unit.

Completely enclosed driving transmission, running in oil.

Heat-treated mixing blades and mixing buckets.

7-second water—accurate to the pound.

Automatic governor booster—speeding up engine and drum during charging and discharging.

Flexible Chabelco Chain drive on drum.

Bronze-bushed levers.

Six-cylinder engine—or choice of four.

8-second discharge.

Fool-proof, power-operated discharge—completely enclosed—running in oil.

Unified action—with charging and discharging times perfectly overlapped.

Spiral, lime-proof cooling system that keeps the engine cool and eliminates radiator and fan.

Foldback top—easily and quickly raised or lowered—by power.

Countershaft above the dirt line.

Dropped-forged gears.

More alloy steel than any paver.

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And these are the reasons why the New Rex 27-E is The Finest, Fastest Paver Ever Built. If you're really interested in *More Yards per Day and More Seasons of Work*, which these exclusive Rex features bring—send for a copy of the New easy-to-read Paver Catalog. A post card brings it. Send the card today.

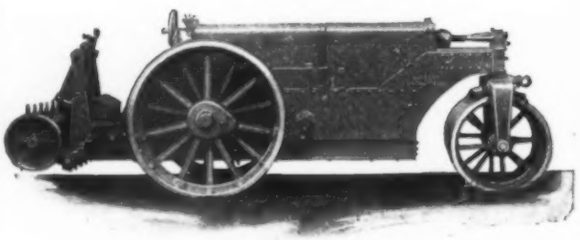
CHAIN BELT COMPANY, 764 Park Street, Milwaukee, Wisconsin

REX PAVERS

BUFFALO-SPRINGFIELD ROLLERS

Steam and Motor Propelled

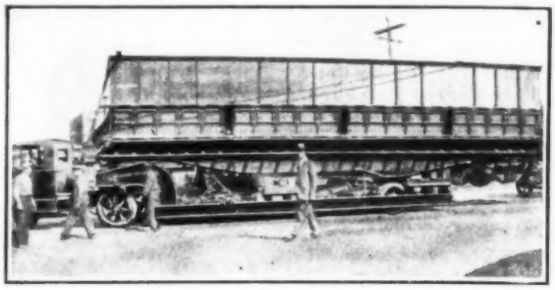
Built in all standard types and sizes



Standard 4-Cylinder Motor, 3-Wheel Roller equipped with Scarifier

Inquiries invited.

The Buffalo Springfield Roller Co.
Springfield, Ohio.



Moving 52 Ton Railroad Cars

Four miles on a ROGERS GOOSE-NECK 6-wheel trailer. The high qualities of ROGERS TRAILERS demonstrate daily its worth in moving big loads.

Let us figure on YOUR hauling problems.

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When conditions demand a roller capable of getting about in close quarters, look to Huber. Clear vision and perfect control enables the operator of a Huber 4-Cylinder Roller to run up to the very edge of an unfinished pavement or curb with perfect ease. Dependable as steam, easy to handle, four sizes (5-7-10-12 tons) from which to choose. Send for free, fully illustrated book.

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all-steel crushers

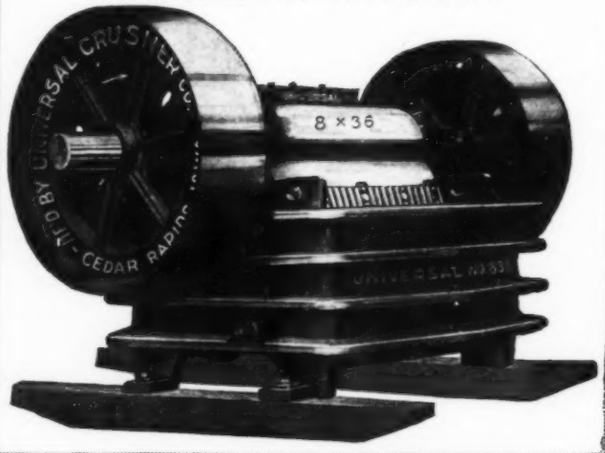
For crushing boulders, limestone, granite, gravel or any other form of rock no matter how hard or soft, UNIVERSAL ALL STEEL CRUSHERS will give you service that will satisfy.

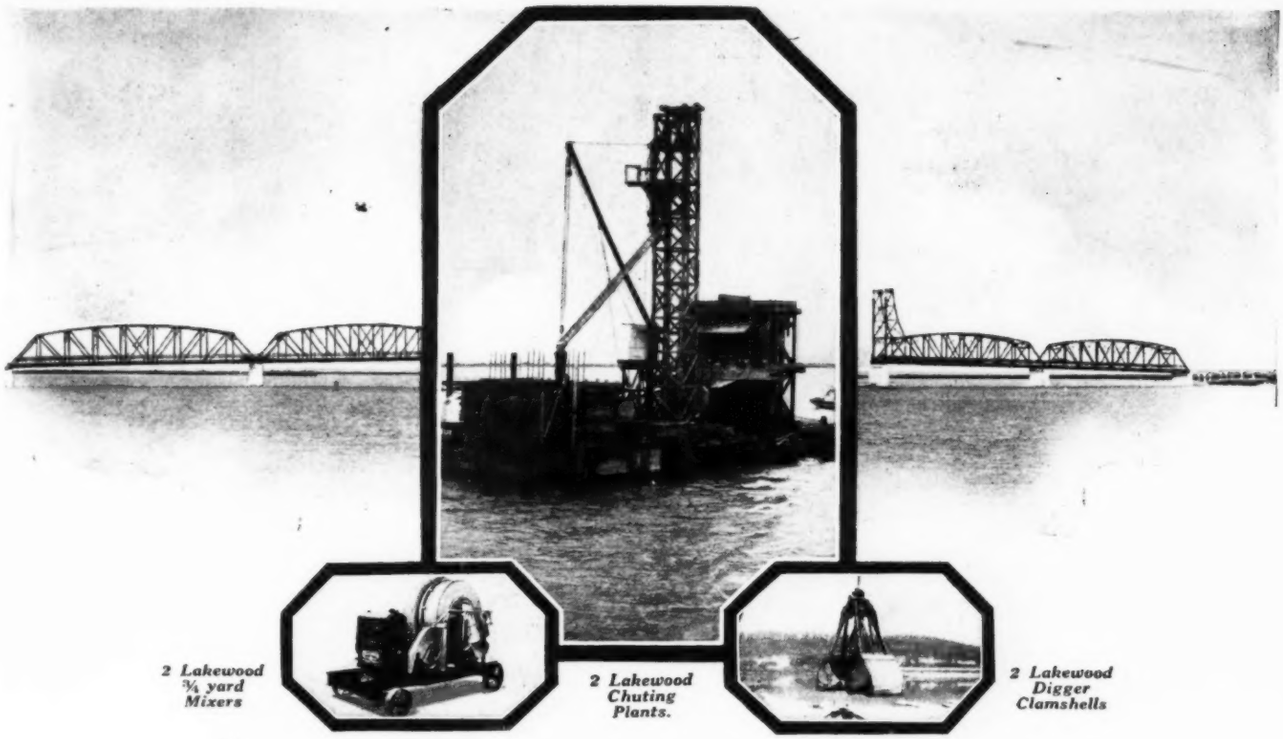
Universal Crushers include the most complete line—22 sizes—in the United States, and they embody over twenty years' experience in the design, building and use of crushers. Daily capacities to 450 tons.

For highway builders, quarries, construction jobs, Universal Crushers handle a great range of sizes with remarkably low upkeep and operating costs.

Stationary or Portable with or without elevators and screens.

UNIVERSAL CRUSHER COMPANY
327 8th Street, West, Cedar Rapids, Iowa





2 Lakewood ¾ yard Mixers

2 Lakewood Chuting Plants.

2 Lakewood Digger Clamshells

Kansas City Bridge Company Lakewood Equipped

Two complete Lakewood Concrete Plants handled, mixed, placed and finished the concrete on this Kansas City Bridge Company job at Mobile, Ala.

There is a complete Lakewood Concrete Plant for every job, large or small. Have the details available—Write for Bulletin 23-S.

The Lakewood Engineering Company

Cleveland, U. S. A.
Export Office: 30 Church St.
New York City
Cable Address—Brosites

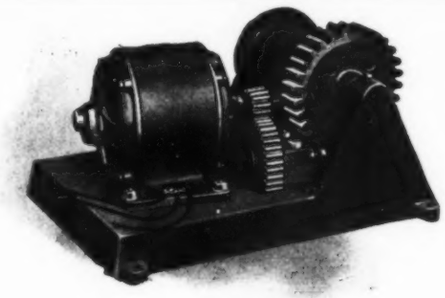
Arc Welded Construction

60,000 feet of purlins welded to rafters on this one job

Four page leaflet on request describing 24 arc welded buildings

May we explain savings effectible on this and other steel construction?

Electric Arc Cutting and Welding Co.
152-6 Jelliff Avenue, Newark, N. J.



500 pounds single line pull at 25 feet per minute

The above illustration shows the Dobbie Worm Winch with a one hp. motor. Note the performance of this unit.

This is an efficient worm-geared winch where a power-driven machine is preferred to hand operation.

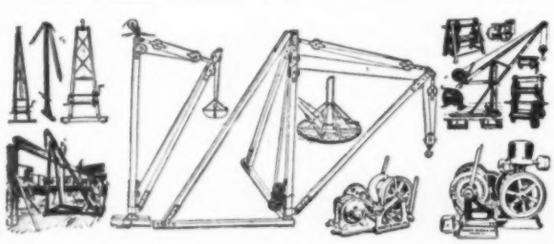
The motor is reversed to lower.

Further particulars gladly submitted.

Dobbie Foundry and Machine Co.
Niagara Falls, N. Y.

DOBBIE EQUIPMENT

PICK UP CARTS — DERRICK FITTINGS
SULKY DERRICKS — WINCHES ALL TYPES



Derricks—
Hoists—
Winches—

The name Sasgen has been identified for many years with large and small building construction.

All sizes up to 10 Ton

Send for Circular S

Sasgen Derrick Co.
3101 W. Grand Ave.
Chicago

New York:
130 W. 42nd St.

Making Every Digging Job Pay More Profit

"Our costs per cubic yard of material excavated on three jobs where we have used a Sauerman Power Drag Scraper average over 40% lower than our costs on similar work before we had this machine," writes the superintendent of a large construction company.

The Sauerman Scraper is light and compact—yet capable of handling the toughest jobs. It digs the material and conveys 30 to 50 loads per hour to the hopper or spoil pile. It has a small power requirement. Its maintenance costs are low. And one man handles all the operating.

A complete range of sizes from ¼ to 10 cu. yd., meets the capacity requirements of every excavating job from the smallest to the largest.

To learn more about the profit-making ability of Sauerman Power Drag Scrapers, *send for a copy of Pamphlet No. 24.*

Sauerman Bros., Inc., 480 S. Clinton St., Chicago

CLYDE

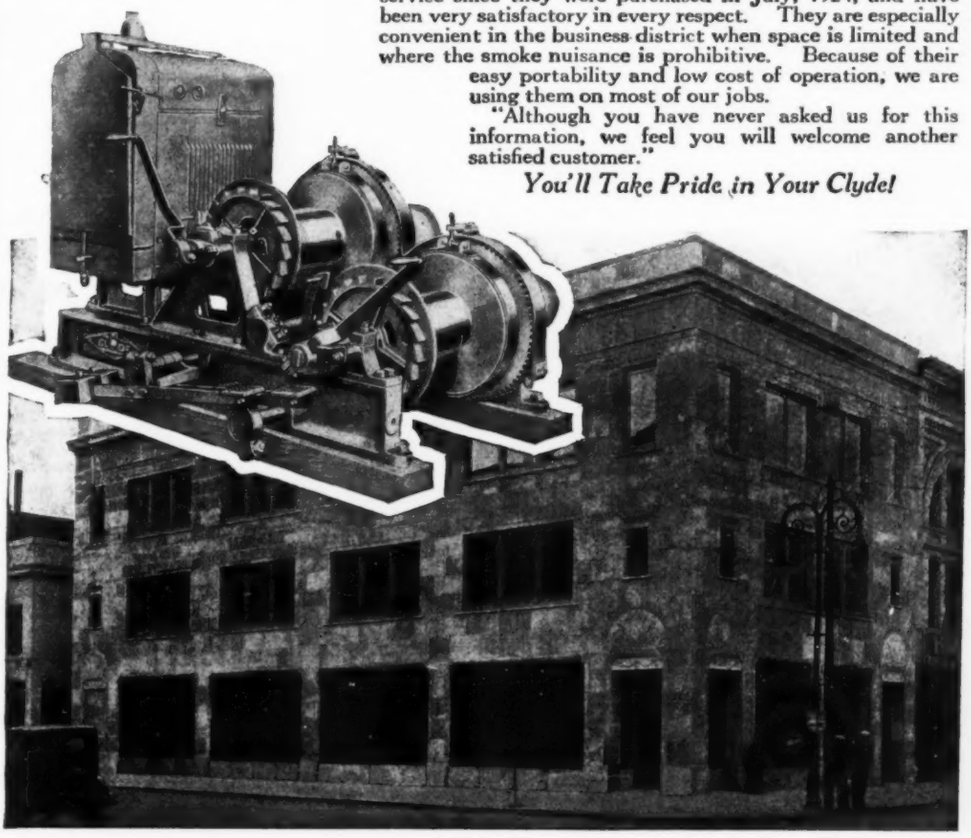
Standard Hoists and Derricks
For the General Contractor
STEAM · ELECTRIC · GASOLINE · BELT

The Gettins-Kopitke Co., general contractors, of Toledo, Ohio, erected the building shown below in eighty-one days, counting Sundays and holidays. This includes erection of the steel frame, laying the cut stone walls; plastering and decorating. All materials were handled with Clyde two-drum gasoline hoists.

The Company writes as follows: "Our gasoline hoists have been in more or less continuous service since they were purchased in July, 1924, and have been very satisfactory in every respect. They are especially convenient in the business district when space is limited and where the smoke nuisance is prohibitive. Because of their easy portability and low cost of operation, we are using them on most of our jobs.

"Although you have never asked us for this information, we feel you will welcome another satisfied customer."

You'll Take Pride in Your Clyde!



CLYDE IRON WORKS SALES CO.

DISTRIBUTORS FOR CLYDE IRON WORKS DULUTH, MINNESOTA

WAREHOUSES:

NEW ORLEANS:	309 MAGAZINE STREET
NEW YORK CITY:	856 EAST 136TH STREET
PORTLAND OREGON	555 THURMAN STREET
SEATTLE:	3410 FIRST AVENUE SOUTH

BRANCH OFFICES:

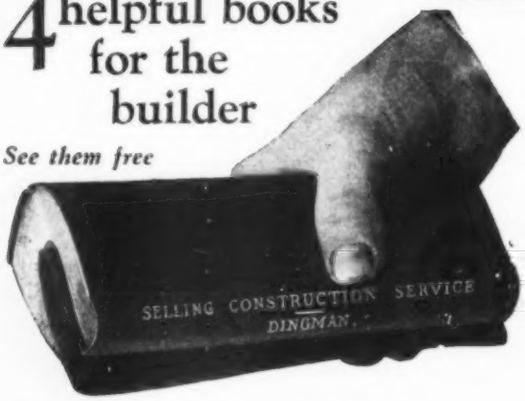
CHICAGO:	11 SOUTH LASALLE STREET
CINCINNATI:	1913 UNION CENT. BUILDING
MEMPHIS:	69 UNION AVENUE
JACKSONVILLE FLA.:	43-45 W. FORSYTH ST.
SAN FRANCISCO:	739 MONADNOCK BLDG.

CLYDE TWO MARKS OF GUARANTEED QUALITY

SUCCESSFUL PERFORMANCE FOR AGC A-A

4 helpful books for the builder

See them free



1. *Dingman—*
ESTIMATING BUILDING COSTS

240 pages, pocket size, flexible, $2.50 net, postpaid.

A practical handbook explaining the principles and methods of estimating building construction costs.
It shows how to analyze every construction job into its component parts.
It tells you how to calculate the cost of materials, of labor, of haulage, of overhead, of equipment, etc. It gives you also good short-cut methods of estimating.

2. *Dingman—*
ACCOUNTING AND BUSINESS METHODS FOR CONTRACTORS

171 pages, pocket size, flexible, $2.50

Mr. Dingman has put the sound, definite, dollars-and-cents methods which have proved to be most successful for him in his long experience.
Methods of time keeping, paying off, finding labor costs, finding material costs, keeping costs where they can be used properly—the common sense of cost-finding and cost-keeping as the practical contractor wants to know it.
He does the same for accounting, purchasing, office procedure, subcontract relations, insurance and banking.

3. *Dingman—*
SELLING CONSTRUCTION SERVICE

158 pages, pocket size, flexible, illustrated, $2.50

How can the building contractor get better results from his advertising and selling effort? What methods can you use to get more business This practical book answers those questions. It tells you what others are doing, how they advertise, how they use letters, advertisements, novelties, etc., how they find their prospects, how they devise plans and ideas. It shows you how you can apply these successful methods to you own business. One idea—and there are hundreds—can pay you over and over.

4. *Dingman—*
PLAN READING AND QUANTITY SURVEYING

201 pages, pocket size, flexible, illustrated, $2.50 net, postpaid

This book explains how to read plans, take off quantities and set them down for the use of the estimator who must figure the cost. It contains a comprehensive set of definite instructions for the reading of plans and the determination of quantities for practically every type of work in the building construction field.

Free Examination

You can have any of these books to examine in your office or home for 10 days free. You can see what they are and how they can help you. You do not have to buy them unless you really believe they are worth far more to you than their small cost. *Just check those you want and mail the coupon back today.*

See for yourself why it pays to have these books handy

McGRAW-HILL
FREE EXAMINATION COUPON

McGraw-Hill Book Co., Inc., 370 Seventh Avenue, New York.

You may send me on 10 days' approval:

.....**Dingman's Selling Construction Service, $2.50.**

.....**Dingman's Accounting and Business Methods, $2.50.**

.....**Dingman's Estimating Building Costs, $2.50.**

.....**Dingman's Plan Reading and Quantity Surveying, $2.50.**

I agree to remit for the books or return them postpaid within 10 days of receipt.

Signed .....

Address .....

Official Position .....

Name of Company .....

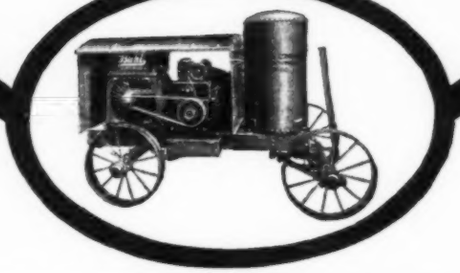
(Books sent on approval to retail purchasers in U. S. and Canada only.) S.M. 3-1-27

Buhl
AIR COMPRESSORS

Below is illustrated the BUHL Type C Portable Compressor—one of the many different types of this popular line. Moderate in original cost and low in upkeep.

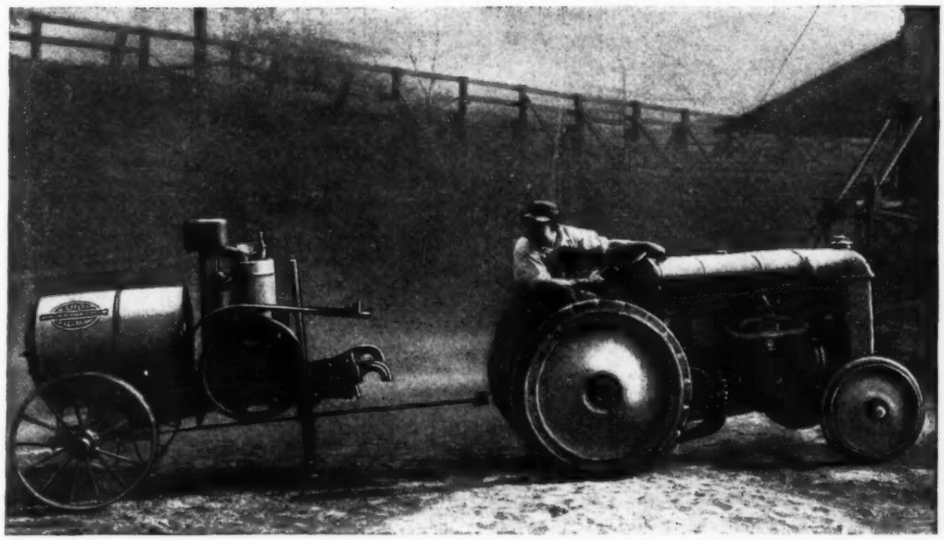
This is a sturdy, compact, portable compressor. It is a single cylinder outfit with gasoline engine and compressor cylinders cast en bloc. Made in 55, 90 and 180 cu. ft. capacities. Any mounting desired. *Also other models. Send for Bulletins.*

THE BUHL COMPANY
Manufacturers
37 W. Van Buren St., CHICAGO



Do the job with Metaforms save time and labor—cut costs

METAL FORMS CORPORATION
Milwaukee, Wis.



What high-grade compressor equipment is priced so low

as the combination of these standard units?

The combined Curtis Portable Compressor, with Fordson tractor, costs *complete* considerably less than any comparable equipment! The reasons: Both units are completely standardized. Both are manufactured by large, well financed, long established companies. Both are produced in quantity by the most modern cost-saving methods.

If other compressor mountings were equally effective, not being so economically manufactured they would have to cost you more—for no greater value.

The Curtis Portable Compressor, both powered and propelled by Fordson, is likewise the most economical to *operate;* while its extreme *mobility* is a valuable added advantage for which you pay nothing extra.

So fundamental are the advantages of this unit; so radical its cost savings; so versatile its ability to handle various kinds of work; that contractors are finding it the one best compressor unit on which to *standardize,* taking the place of other types.

No matter what kind of work you do requiring compressed air, you should purchase no additional equipment without first thoroughly investigating the low-priced Curtis Portable Compressor.

List Price
Curtis Unit Only
(STEEL WHEELS)

$900 SUBJECT TO DISCOUNT

Dealers' Opportunity

Through a period of years, the Curtis Portable outfit has become more and more popular. It is now in demand in all communities, or a demand can easily be built by stocking and showing a sample unit.

With one or more Curtis units, of a single size, economically taking the place of a "line" of other types on the dealer's floor, it is obvious that any dealer, with a small investment, can secure a great deal of additional business which now gets away from him.

MAIL COUPON TODAY

CURTIS Pneumatic Machinery Co.
1995 Kienlen Ave., St. Louis
Branch Office, 5518N Hudson Terminal, N. Y.

Gentlemen:
Please send at once full information about the Curtis Portable Compressor, powered and propelled by Fordson tractor. I prefer to deal through [dealer].

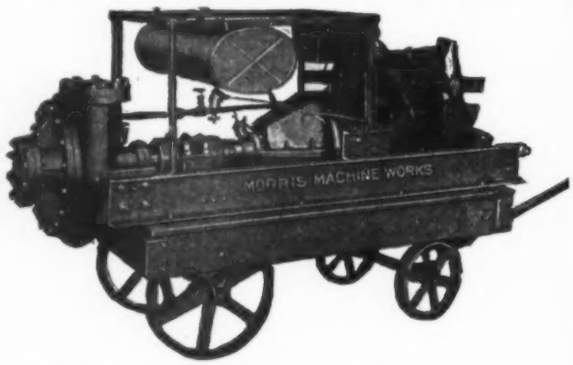
Name .....
Address .....
Write character of work in margin or by letter.

CURTIS COMPRESSOR PORTABLE

Both powered and propelled by Fordson Tractor

CURTIS PNEUMATIC MACHINERY COMPANY, ST. LOUIS, U.S.A.

To make your unwatering and water supply problems easier!

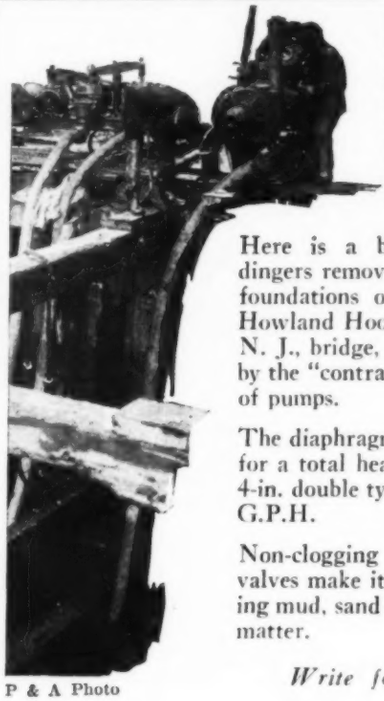


THIS Morris Portable All-Purpose Pump handles anything from clear water to floating dirt, sand and gravel, delivers 300 to 600 gals. per min., can be used for heads up to 50 ft., and is easy to cart from one job to another. For general water supply, unwatering excavations, sumps, etc., it can't be beat.

Write for literature about this and other sizes of Morris Pumps

MORRIS MACHINE WORKS, Baldwinsville, N. Y.

MORRIS
CENTRIFUGAL PUMPS



P & A Photo

Pump Seepage From Deep Excavation

Here is a battery of Humdingers removing water from foundations of the $7,000,000 Howland Hook, S. I.-Elizabeth, N. J., bridge, a big job handled by the "contractor's first choice" of pumps.

The diaphragm models are built for a total head of 50 ft. The 4-in. double type handles 17,500 G.P.H.

Non-clogging rubber ball valves make it a bear for pumping mud, sand and other foreign matter.

Write for bulletins.

Ralph B. Carter Co.
New York, N. Y. Hackensack, N. J.

HUMDINGER PUMPS

EISEMANN

The dominant high-quality magneto for

PAVERS
CONCRETE MIXERS
AIR COMPRESSORS
EXCAVATORS
GASOLINE LOCOMOTIVES

And all types of light and heavy road building machinery.

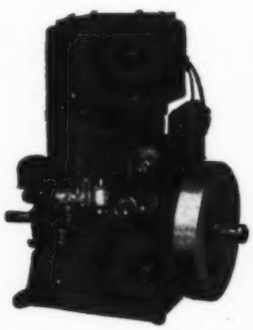
EISEMANN MAGNETO CORP'N
165 Broadway, N. Y.
Detroit - San Francisco - Chicago

EISEMANN
ELECTRICAL EQUIPMENT

Specify—
Fuller & Johnson
ENGINES

It is not only your privilege but it's good business to specify Fuller & Johnson Engines. It means money saved and contracts filled on time to have an engine that will always give you faithful service.

Realizing the importance of reliable and economical power, many of the leading manufacturers of construction equipment have standardized on Fuller & Johnson engines. You can benefit from their experience—in all cases specify Fuller & Johnson engines.



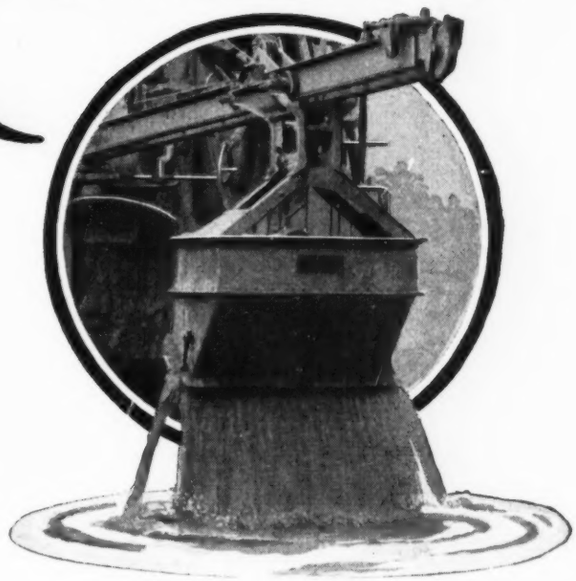
Every contractor should know about Fuller & Johnson engines. Horizontal, single cylinder types, 1 to 25 HP., see bulletin 430. Two cylinder vertical types, 6 to 8 HP., see bulletin AB500.

Let us send them both to you.

FULLER & JOHNSON MFG. CO.
Engine Specialists—Established 1840
107 SAWYER STREET MADISON, WIS.

FULLER & JOHNSON

KOEHRING Re-mixing Action



ONLY the Koehring sends materials through the mixing action, and then returns them to the charging side of the drum, and sends them through the mixing action again, and again — *a clean cut, fast re-mixing action!*

Every grain of sand, every fragment of stone is thoroughly coated with concrete.

Koehring re-mixing action is alone made possible by the Koehring construction which pivots the discharge chute far enough inside the drum so that, in reversed position it scatters and sprays material *back to the charging side* of the drum, as materials are violently projected down upon it from the pick-up buckets at the drum top!

This double spraying, scattering action prevents separation of aggregate according to size! Koehring mixed concrete is *stronger concrete — uniform to the last shovelful of every batch—plastic* — dominant strength concrete!

This means security against extended mixing period when concrete is under rigid inspection, and when mixing time is fixed according to uniformity, plasticity and strength of concrete!

Send for Koehring Construction Mixer Catalog No. P. 17

And Besides the Koehring Is Fast! Fast As a Unit!

Fast in the high speed succession of batch after batch through the mixer! Fast in second-saving control! Beyond all question the Koehring is the *High Speed Paving Unit* — the extra yardage mixer for record-breakers!

SIZES

Pavers—7-E, 13-E, 27-E. Auxiliary equipment and choice of power to suit individual needs. Complies with A. G. C. Standards.

Construction Mixers—10-S, 14-S, 21-S, 28-S. Steam, gasoline or electric power. Mounted on trucks or skids. Rubber tired wheels optional. 28-S on skids only. Complies with A. G. C. Standards.

7-S Dandie Mixer — Two or four cylinder gasoline engine. Power charging skip, or low charging hopper and platform. Rubber tired steel disc wheels or steel rimmed wheels. Complies with A.G.C. Standards.

KOEHRING HEAVY DUTY

KOEHRING COMPANY MILWAUKEE WISCONSIN

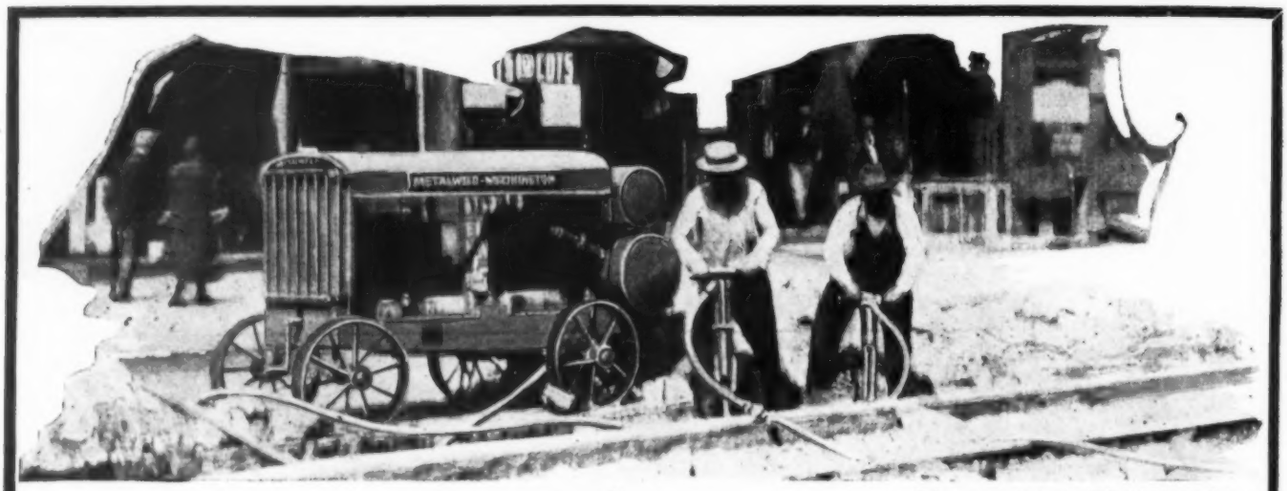
PAVERS, MIXERS—GASOLINE SHOVELS, CRANES AND DRAGLINES

Sales Offices and Service Warehouses in all principal cities

Foreign Department, Room 1370, 50 Church St., New York City.

Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.

A3951



Relaying car tracks in Philadelphia by Baton Const. Co.—William L. Beck, Vice President.

Metalweld
AIR COMPRESSORS
and Tools
—will speed up your job!

Bill Beck says—

"Our Metalweld Compressor is doing All that we expected of it—and more."

Let our nearest dealer make a practical demonstration on your job.

Write for bulletins.

METALWELD, Inc.
2617 Hunting Park Ave., Philadelphia, Pa.

A Word to the Readers of Successful Construction Methods

THIS PAPER is edited to help *you*.

Its chief purpose is to show you the methods and equipment that are being used successfully on construction work and for handling bulk materials in the field.

Naturally its editorial contents must deal largely with modern machinery, equipment, tools and materials. Field work has definitely advanced from the day of man-labor to the day of machine-labor. The successful field man—the man who is going to have a better job or a bigger business tomorrow—is the man who keeps abreast of the never-ceasing improvement in the equipment and materials with which he must work. On this substantial fact the editorial policy of *Successful Construction Methods* has been founded.

But the service of the paper to you does not end with the work of the editor.

NO one has contributed more to the improvement of field methods than has the manufacturer whose advertisement appears in these pages. Day in and day out he is alert for new ideas that he may adapt to the practical needs of you men in the field. It is largely due to his vision, enterprise and initiative that the field man of today has been enabled to increase his own producing capacity and earning power.

The manufacturer too, is contributing to the service *Successful Construction Methods* offers to you, for the story he tells in his advertisement is but an expansion of its editorial theme.

He advertises here only because he believes that his product can be of service to you and that you will want to hear how he can help you to do more work and better work at a longer profit.

Above all, he is here because he believes in *Successful Construction Methods* and in the service it is rendering to you. He believes that his message is in harmony with the spirit and purpose of the paper, and in publishing it here he is helping to increase the value of the paper to you.

WE believe that you will profit by using the facilities he offers through these advertising pages. Read his message. Study his products. Let him know that you are interested and ask him freely for any further help you think he can give you.

The manufacturer prospers only as he is useful to you. You prosper only as you make the most of what he offers. *Successful Construction Methods* prospers only as it is helpful to you both.

WILLARD CHEVALIER, *Manager*

ALPHABETICAL INDEX TO ADVERTISERS

This index is published as a convenience to the reader. Every care is taken to make it accurate, but *Successful Construction Methods* assumes no responsibility for errors or omissions.

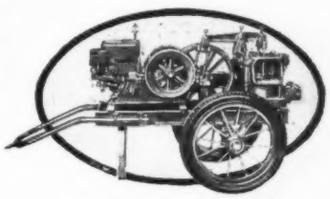
Made in Single and Double 3-in. and 4-in. Sizes

The Non-Clogging Design, Sturdy Construction, and Remarkable Performance Records of Humphryes High Capacity Diaphragm Pumps are worthy of consideration.

Real power pump construction is incorporated in Humphryes High Capacity Diaphragm Pumps. The large direct water ways, outside guided discharge valves and non-clogging suction valves are features of importance to the contractor.

Write for Bulletin 264-S

THE HUMPHRYES MFG. CO.
MANSFIELD, OHIO
DISTRIBUTORS IN PRINCIPAL CITIES



A Speedy Trailer

Successful Construction Methods Equipment Information Bureau

To the Prospective Buyer:

SUCCESSFUL CONSTRUCTION METHODS can't actually buy for you, BUT, in addition to placing before you every month the immense amount of information in its advertising pages, it can be quite helpful in placing your wants before those manufacturers who can meet them promptly and at attractive prices.

To find out just how we can help you in your machinery shopping, use the coupon—

A. W. Welch,
S. C. M. Equipment Information Bureau,
McGraw-Hill Publishing Co.
Tenth Avenue at 36th St., New York, N. Y.

Will soon be in the market for.....

.....

.....

.....

Name .....

Address .....

Tractor Delivery
of Supplies 30 Miles
From Railhead

Maniwaki, Canada

North Latitude
46°—30′
Elevation
600-ft.

Laying Pipe Line

Cuzco, Peru

South Latitude
13°
Elevation
14,400-ft.

ON BOTH SIDES OF THE EQUATOR

THE FOUNDATION COMPANY

CITY OF NEW YORK

Office Buildings
Industrial Plants
Warehouses
Railroads and Terminals
Foundations and Underpinning
Filtration and Sewage Plants

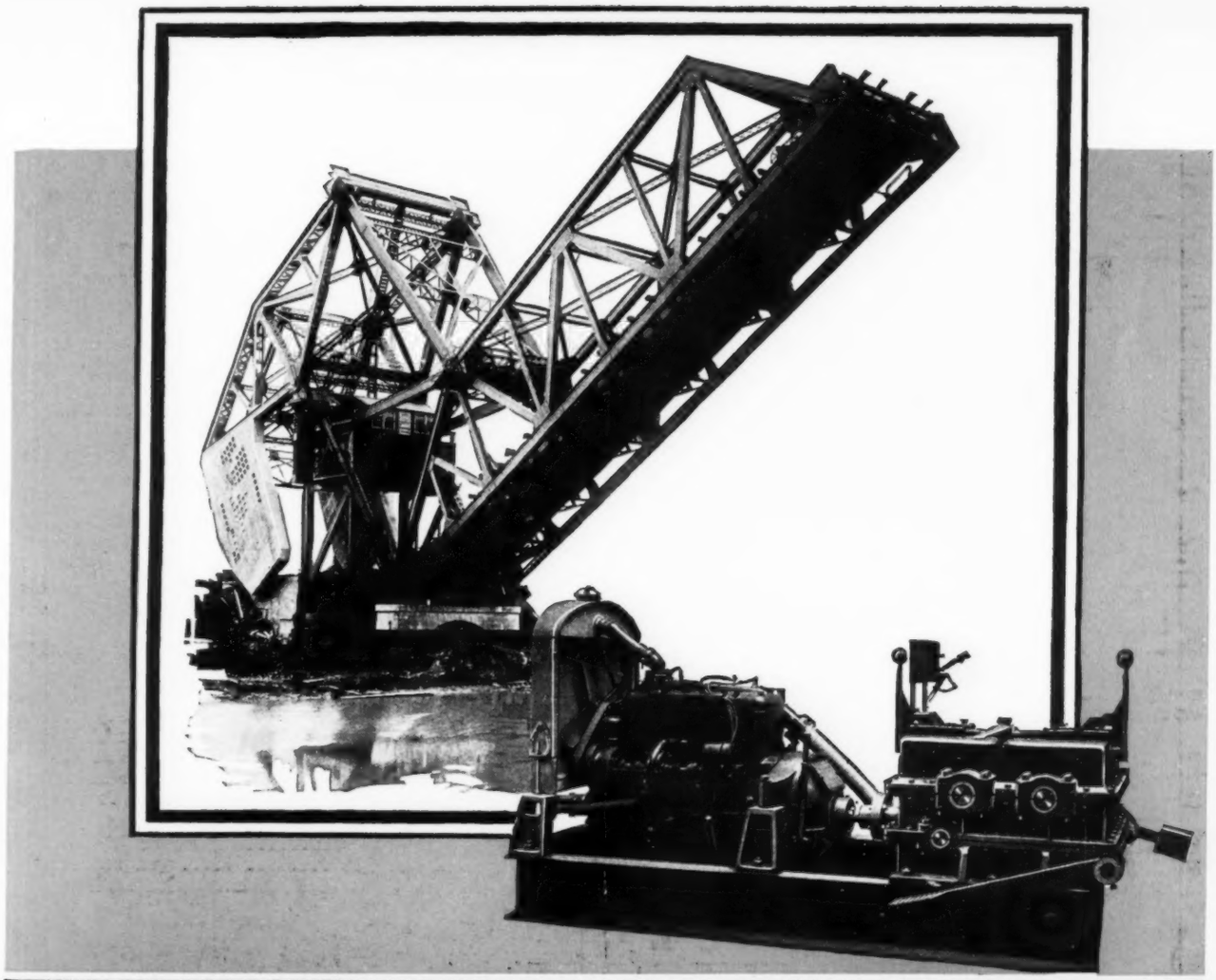
ATLANTA
PITTSBURGH
CHICAGO
SAN FRANCISCO

LOS ANGELES
MEXICO CITY
CARTAGENA, COLOMBIA
LIMA, PERU

MONTREAL
LONDON, ENGLAND
BRUSSELS, BELGIUM
TOKYO, JAPAN

Hydro-Electric Developments
Power Houses
Highways
River and Harbor Developments
Bridges and Bridge Piers
Mine Shafts and Tunnels

BUILDERS OF SUPERSTRUCTURES AS WELL AS SUBSTRUCTURES



HERCULES

When the Earle Gear and Machine Co., of Philadelphia, Penna., builders of Bridge Operating Power Units, chose Hercules Engines they did it because;

Hercules, being simple and compact, always permits of a simpler, more compact complete mechanism;

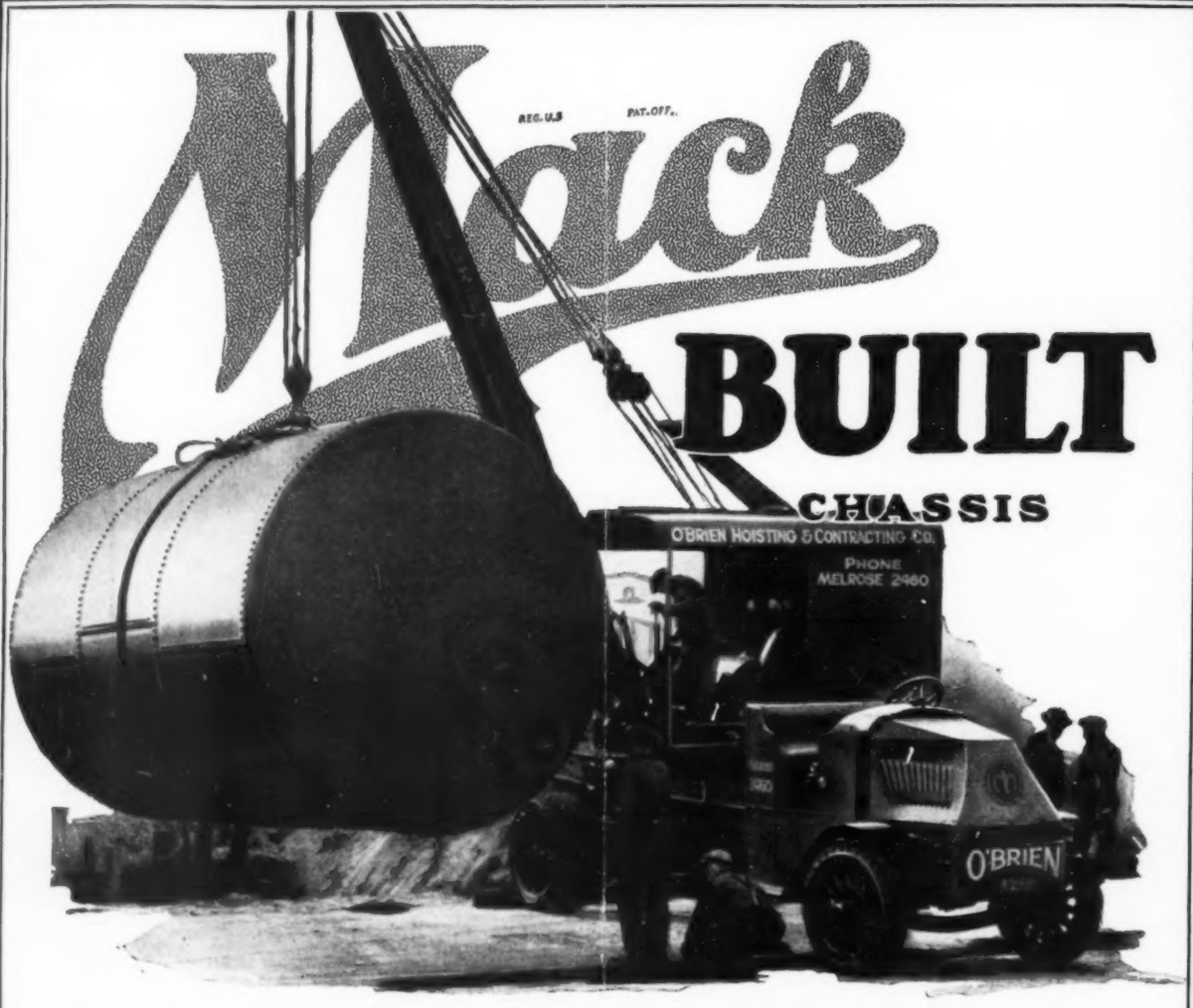
Hercules, being dependable, insures a rugged, dependable operating unit under the most severe operating conditions.

So it is natural that in every industry engineers and operators are specifying "Power by Hercules".

HERCULES MOTORS CORPORATION, CANTON, OHIO, U. S. A.

ENGINES

Mack BUILT CHASSIS



means built with established margins:

in Safety Factors

in Power . . .

in Quality . . .

And when we state that for 26 years Mack interests have been centered exclusively upon the problems of manufacturing transport vehicles—the phrase "Mack Built" also means that an established margin of experience stands back of every Mack chassis that is sold.

MACK TRUCKS, INC.
INTERNATIONAL MOTOR COMPANY
25 Broadway New York City

One hundred and four direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION", "MACK MOTOR TRUCK COMPANY", or "MACK TRUCKS OF CANADA, LTD."